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PART I.—ESSAYS, MONOGRAPHS, AND CASES.

Case of Acute Ovarian Abscess, supervening upon Chronic Disease of the Ovarium, in which the Tumor, after Pointing in the Left Iliac Region, moved completely over to the Right. By JAMES MERCER GREEN, M. D., Macon, Ga.

Among the many difficult problems presented for the determination of the practising physician and surgeon, perhaps none are more difficult to resolve than those connected with the accurate diagnosis and treatment of abdominal tumors. Nor need this be considered surprising when we recollect the great mobility of the abdominal viscera, the different degrees of intestinal distention, the varying thickness of the abdominal parieties, and the fact that some of the viscera are subject to a complete dislocation, indeed sometimes break from their attachments and float loosely about among the other contents of the abdomen; these, together with the great diversity in the size, shape, density, and pathological nature of these bodies, render an accurate diagnosis sometimes sufficiently puzzling.

My attention was drawn to some of these practical points, during a professional attendance on a case that I was called to see, in consultation, in the autumn of 1850.

The patient was a mulatto woman, aged about forty, has had two children, and had not enjoyed good health, but had been

pretty well for the last two years, with the exception of a severe attack of what was apparently rheumatism about the diaphragm, anterior mediastinum, and right thoracic parieties, followed by long-continued and intensely-painful enlargement of the right axillary glands. She also had severe peritonitic symptoms for two or three days, during the above-mentioned attack. She had been severely ill for two weeks, when first seen by me, during the last and fatal illness, with fever, occasional vomiting, pain and soreness in the lower part of the abdomen, and the development of a painful swelling in the *left* iliac and hypogastric regions, occupying most of the former and part of the latter, and encroaching upon the umbilical. This swelling presented in the centre a large and indistinctly fluctuating point, about two and a half inches below the umbilicus and as much to the left of the median line. This *point* was two inches in diameter, and presented the usual superficial inflammation, and surrounding painful induration of the cellular substance that is considered to indicate a phlegmonous collection, in fact, the suppurative engorgement. During the repeated examinations to which it was subjected, a peculiar crackling noise was heard whenever pressure was made at a particular part of the fluctuating *point*, and this sound and the sensation attending it, were compared to those that might be produced by one edge of an overlapping cartilage being forced past an opposing edge. Continuing the examination in the vagina and rectum, no notable change was perceived in either of these canals. The vagina was perhaps diminished in length and the uterus very small and hard. The *diagnosis* at this stage of the case was a phlegmonous collection, either in the abdominal parieties, or in one of the ovaria, or the result of a local peritoneal inflammation isolated by adhesions, at all events a phlegmonous collection. By a continuation of the judicious treatment to which she had been previously subjected—leeches, blisters, &c.—with the energetic use of rectum tubes and enemeta, her condition was very much alleviated, and the fever, quick pulse, vomiting, and intestinal distention, were considerably abated, and the patient seemed evidently better. But after a few days all these symptoms returned with increased severity. The abdomen became greatly distended, and the bowels completely ob-

structed; the tumor increased in size and moved more towards the median line. It could now readily be felt in the vagina, and the uterus was forced lower down, and on introducing the finger *per anum* the small hard uterus was immediately perceived at the bottom of the tumor, which had expanded into a large smooth globular body, completely blocking up the canal, the whole reminding the observer very forcibly of an immensely distended bladder, with its prostate felt through the rectum. It was found impossible to pass a tube beyond the tumor, with the most careful manipulation. This state of things continued for a day or two, by which time the abdomen had reached its utmost point of tympanitic distention, and the tumor had rolled entirely over and a little downwards, into the *right* iliac region, the opposite region having at the same time become perfectly *resonant*, and the phlegmonous *point*, with the superficial redness and surrounding suppurative engorgement having totally disappeared. Our diagnosis now became narrowed down to *ovarian abscess*. Singular, however, to relate, that although the bowels were thus totally obstructed, and had been for a week, although the abdomen was swollen almost to bursting, yet in this state her condition became alleviated in a remarkable manner—the fever subsided to a great degree—the abdominal soreness diminished very much—the pulse was slower and the vomiting only occasional. But as it was clearly manifest that this improved state could not last long, under present circumstances, it was determined, after due consultation, to puncture the tumor, and let out its contents, whatever they were. Accordingly, after carefully examining and percussing for any arterial or intestinal interference, an exploring needle was passed into it, about two and a half inches from the right superior spinous process. A thick, clear fluid soon began to exude through the canula, and continued to do so until a couple of tablespoonfuls had dropped into the basin and coagulated. This was apparently pure albuma, and such as is often found in ovarian tumors. We now thought that our diagnosis, in regard to the phlegmonous nature of the disease, might be erroneous; but presently a few pearly drops were intermixed with the albuminous fluid; and then the tube began to discharge a stream of thick, inodorous, laudable pus. The small tube was now

withdrawn, and a trocar and canula of the largest size was passed firmly into the centre of the swelling, and its contents were discharged in a copious, purulent stream, upon removing the trocar. At least four quarts flowed through the canula during the evening and night. In the morning, the discharge having ceased, it was found that the tumor had receded considerable from the abdominal walls, and the canula had slipped out of the opening in it; nor could it ever be reintroduced. But the patient's condition was vastly improved; copious evacuation of fœces and flatus had mostly relieved the abdominal distension, the gastric disturbance had ceased, and she expressed some desire for food. The motions from the bowels continued until the abdomen had resumed its natural dimensions, when the swelling was found to be hardly perceptible—the fever and quick pulse disappeared, the abdominal soreness was removed, and the patient seemed to be in all respects convalescing for several days. At the termination of this period—about the fourth to the fifth day after the puncture—the case again began to alter for the worse rapidly; all the symptoms returned, except that, instead of intestinal obstruction, a diarrhœa supervened, and instead of being distended, the abdomen was sunken and contracted, the tumor becoming more evident as the contraction increased. The patient sunk and died on the 4th November, just thirty days from the commencement of her illness, and fourteen days after puncturing the tumor.

On examining the body twenty hours after death, the bowels were found to be in a state of intense inflammation, and united together, and to the peritoneal lining of the abdomen by almost universal adhesions, and that the abscess had been developed in the *right* ovarium. It was partially filled, containing about a quart of putrid, purulent matter, and had two sacs larger than a hen's egg attached to it—one posteriorly, and the other at the right-hand end; surrounding the latter sac were a number of smaller ones, still filled with clear albuminous fluid. And here was the explanation of the variation between the first and latter part of the fluid discharged by the puncture—the exploring needle having passed through one of them previously to entering the large sac. One of the most remarkable appearances of this diseased mass, and one that accounts for the

peculiar noise and sensation experienced when the tumor was handled during life, was a number of firm ossific plates that lined the sac, from one and a half by one inch in diameter, down to the smallest size, varying from the thickness of a ten cent piece to that of a half dollar, and rendering it so stiff that it would not collapse when laid on the table.

The points that I consider of most interest in this case, are:

First: That after *pointing* on the left side of the lower abdomen, and presenting the usual cellular induration and superficial redness, that seemed to indicate every probability of a complete adhesion of the tumor to the abdominal walls; yet after this, it rolled completely over to the opposite side and made its appearance in the right iliac region. It is difficult to assign a cause for the development and *pointing* of an abscess of the *right* ovarium, in the *left* iliac region; but the moving power that impelled the tumor from its position on the left to the right of the medium line, no doubt was the sudden intense tympanitic distention of the larger mass of small intestines situated on the left side of the abdominal cavity, and the probably collapsed state, at this time, of the cœcum.

Second: The occurrence of a peculiar sound and feeling when the tumor was manipulated. This was explained by the *post mortem*, the edges of the strong ossific plates slipping past each other when pressed, and producing the peculiar sound alluded to.

Third: The remarkable improvement of symptoms at the period of greatest abdominal distention. This is a curious circumstance, but one not so unaccountable as it would appear at first sight. It would naturally be expected that when the tympanitic distention approached its height, and the tumor increased to such an extent as almost to fill the pelvic cavity, completely obstructing the rectum and urethra, and pushing the uterus down upon the perineum, the general suffering and the other symptoms would show a great increase in gravity and violence. But it was not so in this and in some other cases of great abdominal distention that have came under my observation. On the contrary, a marked improvement, for the time, took place in the patient's feelings and in the general symptoms. I have seen the same thing exemplified in a case of cancerous disease of the sigmoid flexure of the colon, and still more re-

markably in a case of imperforate anus, where the child lived many days, not suffering much discomfort, with the abdominal parieties distended to a state of semi-transparency. The reason of this temporary, though for the time real improvement in the patient's condition, I imagine to depend on the great and not properly appreciated influence of *pressure*, in diminishing the afflux of blood to inflamed parts. Precisely the same influence as is exercised by the methodical compression of a well applied bandage in certain cases of inflamed limbs, and in some mammary inflammations by adhesive straps. This state of things, however, cannot last long, and the calm must be a deceitful one.

Fourth: The apparent approach to convalescence after the puncture, and the occurrence of inflammation, and a fatal termination after this real improvement in the patient's condition. The relief afforded by the removal of the pressure from the abdominal outlets, and the free flatulent and fœcal discharges can very readily be understood; the second attack of inflammation may have been owing to the escape of ill-conditioned pus from the tumor into the abdomen, or from the reaction consequent upon the removal of the pressure of distention, but more probably was the result of the severe perturbation to which the parts had been subjected.

Semi-Annual Report of the New York Lying-in Asylum. By EZRA R. PULLING, M. D., Resident Physician.

During the six months ending December 31st, 1854, the total number of patients was 301.

The house cases numbered 64, all terminating favorably to the mothers. Of the children, 3 were still-born.

The vertex presented and the occiput emerged under the pubic arch, in every instance.

The presentation was once complicated by descent of the arm in the right sacro-iliac angle, the occiput pointing towards the acetabulum of same side. Reduction being impossible, version was resorted to, and the left knee was brought down, but, though evolution and extraction were speedily accomplished, the child was dead.

A case of prolapsed funis occurred during the temporary absence of the resident physician. The labor progressed rapidly, and was therefore allowed to terminate without interference by the physician in attendance. This child was also still-born.

Deformity of the pelvis was found in one instance, the space between the ischia being too small to allow the head to pass, even with the aid of forceps. Delivery was therefore effected by craniotomy, after a labor of about sixty hours. All of these complex cases were first labors.

The duration of labor, position of the occiput at the superior strait, and number of primiparæ, are shown in the following table :—

Hours in Labor.	Cases.	R. A.	L. A.	R. P.	L. P.	Unknown.	Primiparæ.
More than 24,..	6	2	3	1	0	0	5
From 12 to 24,.	10	1	8	1	0	0	7
Less than 12,..	48	0	33	2	1	12	18
Totals,....	64	3	44	4	1	12	30

The average duration of labor was about 9 h. 40 min.; in primiparæ, about 13 h. 30 min.

In the cases exceeding twenty-four hours, delay was due once to deformed pelvis, once to descent of arm, twice to uterine inertia, and twice to resistance at the inferior strait. The labors lasting from twelve to twenty-four hours were, in eight instances, prolonged chiefly in the first stage—twice by rigid os, once by excessive size of fœtal head, once by obliquity, and once by inertia of the uterus. In three instances there was no assignable cause for delay. Twice labor was retarded by resistance at the inferior strait.

The weight of the child at birth varied from 6 lbs. 2 ozs. to 11 lbs. 8 ozs. Its average weight (8 lbs. 4 ozs.) bore to that of the placenta (19$\frac{2}{3}$ ozs.) the ratio of 1 to 0.1469. In those cases where the weight of the child exceeded 9 lbs., the placenta averaged 24$\frac{3}{5}$ ozs., and the ratio was as 1 to 0.1421.

The longest funis measured 44 inches; shortest, 9$\frac{1}{2}$; average, 23. In three instances it was attached to the margin of the placenta; eight times it was around the neck of the child.

The fœtal circulation was examined by auscultation, both before and during labor, in thirty-three cases. In two the fœtal

heart could not be heard. In the remaining thirty-one the point at which its pulsations were most distinct during the last month of pregnancy, was from one to three inches below the horizontal plane of the umbilicus, being situated on the median line once, to its right five times, to its left twenty-five times. In two instances it changed from the right to the left side of the abdomen, a few days previous to labor.

The frequency of the fœtal pulse, before the commencement of uterine contraction varied, from 104 to 168, averaging 134. In two cases, in which the mothers entered the Asylum laboring under a severe bronchial affection, attended by much vascular excitement, it was 152 and 160 respectively.

The fœtal pulse, during labor, averaged about 128. Its range was not fully determined, it being subject to great variations. In one instance, in which ergot was given two hours prior to delivery, exciting the uterus to strong contraction, the frequency of the pulsations was immediately diminished from 140 to 128 per minute, remaining thus depressed until the expulsion of the child.

The district patients numbered 237.

The duration of labor, presentation, and the respective number of primiparæ and of still-born children, were reported in 139 cases as follows:—

Hours in Labor.	Cases.	Vertex.	Face.	Breech.	Feet.	Primip.	Still-born.
More than 24,..	16	15	1	0	0	7	2
From 12 to 24,.	26	24	0	1	1	12	3
Less than 12,..	97	92	1	2	2	19	5
Totals,....	139	131	2	3	3	38	10

The average duration of labor was 10 h. 10 min.; in primiparæ, 12 h. 30 min. The causes of the still-births were thus reported:—

Deformed Pelvis,.....	1
Convulsions,.....	1
Prolapse of Funis,.....	1
Strangulation by Funis,.....	1
Syphilis,.....	3
Unknown, or not reported,.....	3

Deformity of pelvis was reported once. Delivery was effected by craniotomy, after a labor of about forty hours.

Prolapse of funis occurred twice. In one case version was performed successfully. The other was left to nature, and the child perished.

There were two cases of eclampsia. One occurred during labor, before full dilatation of the os. It was treated by general bleeding, antimony, external stimulus, cold to the head, &c., while during the paroxysms chloroform was freely administered. Complete dilatation, and expulsion of a still-born child, followed within an hour. There were only three convulsions after treatment commenced, one being subsequent to delivery. There had previously been four or five paroxysms. The patient went on favorably till the sixth day, when, from some cause not fully ascertained, peritonitis suddenly set in, which proved fatal within sixty hours. In the other case, convulsions occurred after labor. The treatment was not reported. The patient recovered.

Selections from Favorite Prescriptions of Living American Practitioners. By HORACE GREEN, M. D.

It is well known to the medical profession of New York that, for many years past, our rooms for the treatment of patients have been visited daily by medical men, not only physicians of the city, but by those who, coming from different parts of the Union to New York, have called on us, either from curiosity, or from a desire to observe every improvement in practical medicine. It will be within the truth to state that the numbers of those by whom we have been in this way honored have exceeded one thousand annually, for many past years.

Ever ready to communicate to the profession any, and whatever, practical knowledge we were in possession of, we have never hesitated to ask of others such useful information as we supposed they might have derived from experience and observation. Acting on this principle, we have accustomed ourselves for many years, when visited by experienced practical physi-

cians, to request of them copies of some of their favorite prescriptions — those prescriptions, from the employment of which they have derived the greatest advantage in the treatment of disease. In this way we have collected together two large manuscript volumes of medical formulæ, obtained from different practitioners coming from every part of the Union, many of them being the contributions of some of the most distinguished American physicians and surgeons of the present time. These therapeutic excerpts, which have come to us through individual contributions, and are the collections of much labor, we propose to give back to the whole faculty, through the *Monthly*, as the choice formulæ of many of the profession of our country.

That many of these prescriptions will be new to the profession, or that all of them will prove to be of equal worth to the practical physician, we are far from declaring; but many of them we have employed for several years, in our treatment of disease, and can speak confidently of their great value.

With the scientific physician it is a matter of regret that, in our present state of medical knowledge, we cannot claim for the principles of Therapeutics that they are fully established on rational grounds.

Until the relations which exist between the pathological condition of internal diseased organisms, and the action of therapeutical agents, is better understood, our knowledge of the ultimate influence of medicinal substances upon these morbid conditions must be necessarily imperfect, and our system of therapeutics be considered rather empirical than rational. We know from experience—and from experience only—that certain remedies are valuable in the treatment of certain diseases; but this knowledge even is limited, and hence the importance of extending its boundaries by collecting from the practical observations of the experienced of our profession.

For obvious reasons, we shall arrange these formulæ under their appropriate heads.

Narcotics and Sedatives.

The narcotic principle in medicine differs from that of the sedative in this, that its primary action is in some degree stimu-

lant, whilst the sedative principle tends directly to depress the vital powers without inducing any previous excitement. The ultimate action of both narcotics and sedatives is to diminish the sensibility of the nervous system, thereby allaying pain and promoting sleep.

Among the direct sedatives *Hydrocyanic Acid* is one of the most prompt and efficient. Administered in appropriate doses, it tends directly to lower the sensibility of the nervous system, to diminish the frequency of the pulse, and to induce a sensation of quiet and calmness throughout the whole system. Alone, or in conjunction with other remedies, Prussic Acid constitutes one of our most valuable therapeutic agents.

The following combinations with this remedy have been proved to be of great service in the treatment of disease:

℞ Acidi Hydrocyanici, Medicinalis, gtt. lx.
Morphiæ Sulph. gra. iij.
Tinct. Sanguinariæ,
Vini Ipecacuanhæ, aa f.℥ss.
Syr. Pruni Virginianæ, } f.℥ v.
Vel Misturæ Amygdalæ, }

M. fiat misturæ cujas sumat cochlearium parvum bis terve in die.

We have found the above a most valuable remedy in the treatment of chronic bronchial disease; in allaying the cough present in tuberculosis, and in all pulmonary catarrhal diseases, unattended with fever. As the acid is apt to float on the top of the liquid, the phial should be shaken on the administration of each dose.

℞ Acidi Hydrocyanici, gtt. xl.
Vini Antimonii, f.℥ss.
Syrupi Tolutan. f.℥iss.
Mucil. Acaciæ, f.℥ij.

M. fiat misturæ, capiat cochl. parvum ter quaterve die.

This may be used in the same cases as the former, when the cough is troublesome, and is attended with some degree of fever.

As a remedy in the treatment of hooping-cough, Hydrocyanic Acid surpasses in efficiency every other known general remedy.

We have employed it for many years in this disease, and can fully substantiate the declaration of Dr. Hamilton Roe, that "Hydrocyanic Acid of Scheele's strength will, if exhibited as soon as the whoop is heard, effect a cure in almost every case of simple hooping-cough." If the disease has been going on for many weeks, its effects are not so immediately felt, but nevertheless it will cure in most instances."*

The following formula we are accustomed to employ:

℞ Acidi Hydrocyanici, Medicinalis, gtt. xxv.
Vini Ipecacuanhæ, f.℥ij.
Syr. Tolutan. f.℥j.
Aquæ destillatæ, f. ℥iij.

Fiat mistura, cujus sumatur cochl. parv. quartâ quâque horâ.

It is important that its use be entered upon as soon as the presence of the characteristic whoop determines the nature of the disease. If the breathing is oppressed, or the symptoms present indicate the existence of bronchial inflammation, the administration of the sedative should be preceded by the exhibition of an emetic, and perhaps by the application of a few leeches to the chest.

If administered too freely, the acid will produce a greatly depressing effect on the vital powers. Should much debility therefore occur during its employment, the remedy should be omitted, and mild tonics, with a more stimulating expectorant, be exhibited for a few days, when the use of the hydrocyanic acid may be renewed.

"The dose of hydrocyanic acid for an infant," says Dr. Roe, "is about three-quarters of a minim of Scheele's strength, gradually increased to a minim, which may be given every fourth hour; for a child of three years of age, about one minim, gradually increased, if necessary, to a minim and a half every fourth hour; for children of ten or twelve years of age, a minim and a half, increased to two minims every fourth hour. It is safer to give this medicine in small doses at very short intervals, than to run any risk of producing too great depression by a

* A Treatise on the Nature and Treatment of Hooping-Cough, by Geo. Hamilton Roe, M. D., Fellow of the Royal College of Physicians, &c., London. pp. 95–6.

large dose. The frequency of its exhibition must depend upon the strength of the patient and the severity of the attack. The dose should be repeated when the effects begin to subside, which in mild cases generally happens in three or four hours; but when much fever is present, its influence is felt but a very short time; under such circumstances, a larger quantity may be given and at shorter intervals, without any apprehension of danger, *so long as the fever lasts.*" *

℞ Acidi Hydrocyanici, Medicinalis, f.ʒj.
Liquor Potassæ, f.ʒss.
Infus. Columbæ, f.ʒij.
Misturæ. Amygdal., f.ʒiv.
Misce. Capiat Cochl. minim. ter die.

In cases of long-continued chronic bronchitis, the physician occasionally finds this disease complicated, with a peculiar irritable condition of the gastric mucous membrane, manifested by tenderness of the epigastrium, a red tongue, frequent headache, and a feverish condition of the system. In such cases where the inflammation has extended to the mucous membrane of the stomach, producing this not uncommon form of *broncho-gastritis*, the exhibition of the above combination, with the hydrocyanic acid, the alkali, and the bitter vegetable infusion, will exert a prompt and a decidedly happy influence on this diseased action.

Combined with the extract of belladonna, hydrocyanic acid has also been found very useful in the treatment of *gastralgia*, and in "*irritable gastric dyspepsia.*"

The following mixture prepared, and a teaspoonful of the medicine administered three or four times daily in these affections, will, by acting on the nerves of the stomach, greatly diminish their irritability:

℞ Extract. Belladonnæ, gra. x.
Acidi Hydrocyanici, Medicinalis gtt. lx.
Tinct. Columbæ.
Syr. Simp. aa. f.ʒj.
Aquæ. Distillatæ, f.ʒij.
Misce.

* Op. citat. pp. 89-90.

The above combination has likewise been employed with great benefit in the treatment of spasmodic asthma.

These, then, are some of the useful combinations of one of our most important therapeutic agents; and we can assure the practical physician that not only in these affections, to which allusions have been made, but in the treatment of many other diseases, he will find these remedies invaluable aids in controlling diseased action.

The *anhydrous*, or pure hydrocyanic acid, which consists of one equiv. of cyanogen, and one equiv. of hydrogen, is of a nature so exceedingly poisonous, that it cannot be employed with safety in medicine. The *medicinal* acid, which is the preparation that should always be directed to be used in our prescriptions, contains only 2-5. per cent. (United States Pharmacopœia) of the pure acid. That of the Apothecaries' Hall, London, contains 3.-2 per cent.; whilst the medicinal acid of the French Apothecaries is nearly equal to that of the United States Pharmacopœia—namely, 2-4. per cent. of the pure acid of Gay Lussac.

As the strength of the different medicinal acids cannot be depended on as being always of the same uniform power, it has been proposed that the cyanide of potassium be substituted in medicine for the hydrocyanic acid.

℞. Cyanidi. Potassii., gra. xxii.
Alcohol. Officinalis, f.℥xi.
Misce.

This preparation of cyanogen, which possesses the same medicinal qualities, and is of the same strength with the hydrocyanic acid, is greatly preferred by many practitioners as a therapeutic agent, inasmuch as it can be depended on as being always of an uniform strength. It may be used in the same doses and under the same circumstances in in which the hydrocyanic acid is administered.

On the Epidemic Cholera. By Dr. A. G. LAWTON, of La Salle, Ill.

The cholera (so called), is one of the most formidable diseases yet known, and one the least understood; we have no clue to

its character by its name; we have no authors who can tell us what it is or from whence it springs.

My object now is to inquire what it is, if by any means I can arrive at the truth in the case.

In 1832 I was living in the town of Jordon, New York, when the cholera came there, and a number died within a few days. Finally I was taken myself. Towards morning I felt a dull, heavy, painful sensation about the epigastric region, with some slight cramps, but having had no diarrhœa, I was not alarmed. This continued at intervals until 9 o'clock, when suddenly an awful feeling of distress came over me, and I fell down in a spasm. Thus I continued for half an hour or so, during which time I cramped, feeling a sensation as if cold water were falling on my head; after a while I got up and walked across the floor, and fell down again in the same way, with eyes sunk, skin contracted, complexion changed, skin wet and clammy, cold perspiration and pulse nearly extinct, at which time purging first commenced quite severe, with a rapid failing of the powers of life, which continued about three hours. After this the vital powers began slowly to mend, but the purging continued about twelve hours, after which it ceased, and convalescence continued till health was slowly restored. In a few days after this I saw another case precisely like the above, but in place of terminating in convalescence it terminated in death, in about six hours, the diarrhœa being absent in the forming stage.

Now were these cases cholera?

In the cholera of 1832–4, although a majority of the cases were preceded by diarrhœa, yet a great part of them were much like the above, as far as the foregoing diarrhœa is concerned. These cases were preceded by some slight indisposition, a hardness or aching about the stomach and bowels, giddiness at times, nervous restlessness and a fickle appetite, which continued for a number of days or more, when the prostrating attack came on suddenly, after some unusual exposure or overeating. Under these circumstances these cases terminated in death, or convalescence in a very few hours.

In the cases preceded by diarrhœa, the diarrhœa was painless, at least for some time before the termination.

The first indication of the cholera that came to my knowl-

edge, in Missouri, in 1849, occurred in some ague patients. They first had diarrhœa come on suddenly, as the chill came on, after which they had no more until the next chill time, at which time they had a return of it, and died the same night of the cholera. In the course of a few days there were a number of cases of cholera in the neighborhood. Soon after, all the cases along the river were cholera, and this disease spread in the country along the streams, until all the ague and other affections seemed to be merged in this all-prevailing epidemic. Whatever the beginning might be, in whatever form of disease, they all seemed to manifest a strong tendency to terminate in the cholera. After the epidemic become fully developed, all signs of other diseases vanished; and again, when the epidemic began to decline, fevers and agues came in, and as the cholera lessened, they increased, until fevers again became the ruling disease.

In 1849, along the valley of the Mississippi, in May and June the cholera was generally preceded by diarrhœa, or a watery discharge, in July and August, or as the weather became hot and dryer, the worst cases had no diarrhœa.

The first symptom of the cholera is an irregular, or a confined state of the bowels, which is always the case, to a greater or lesser extent, as far as my knowledge extends, though generally overlooked by the patient. This is sometimes followed by a watery discharge, during which time the contents of the bowels divide, the fluid portion passing off while the more solid portions remain, indicating a depraved state of the digestive fluids and a paralyzed condition of the bowels. The patient becomes nervous, easily alarmed, and restless. This state of things may continue for a longer or shorter time, from two days to fourteen, or even longer, according to circumstances, or the conduct of the patient.

During this time the circulation in the bowels is checked, being gorged with blood, by which means assimilation is delayed, and finally suspended, and the diarrhœa continues, and often assumes a frothy, fermenting character.

Meanwhile the fluids of digestion fail by slow degrees, until they fail to be secreted at all, when the juices of the stomach, liver, spleen, and the bowels cease to flow out; the urine is

suppressed, and in fact, the entire secreting surface from the stomach to the descending colon ceases to act; digestion and assimilation totally fail; the contents of the stomach become sour, and constant vomiting and purging is the result;—the viscera of the chest and bowels become gorged with blood, the chyle ceases to be formed, and the blood, being cut off from all supplies of chyle or any other fluids, becomes of a tarry consistence, the watery portion passes off through the skin, as well as by exosmosis, and the subcutaneous cellular tissue becomes disgorged in the same way. This causes a shrinking of the exterior which, although it appears to be considerable in some patients, yet the loss of a very small quantity of fluids under these circumstances is sufficient to cause it all. In this disease, as in some others, the bowels are overloaded after vomiting and purging have continued for a number of days. In one case, after vomiting and purging had continued for a long time without abatement, a dose of castor oil, turpentine, and laudanum, brought away a hardened mass near three inches long and an inch thick, the centre of which was dry and hard. The patient recovered.

Most cholera patients drink considerable water in the forepart of their sickness. When a healthy person drinks water, it is taken up by the various emunctories of the system and used to supply the waste of the different changes, perspiration, &c. Not so with the cholera patient; for in his case all such action has ceased. All action to and from the bowels and stomach has become suspended; hence, the blood failing to receive its accustomed fluids assumes a tarry consistence and settles towards the centre. It no longer flows out to nourish and support the waste of the cutaneous emunctories, while the subcutaneous cellular tissues become disgorged through the skin, and, no longer supported by the blood with its accustomed fluids, it collapses, and the exterior shrinks; the skin becomes relaxed, and the moisture of the flesh evaporates through it as it would on the dead subject.

The evacuations in cholera contain no mucus, for the mucous surface is shut up; they contain no bile, for the biliary organs are closed; they contain none of the juices of digestion, for all he organs that supply this fluid have ceased to act—*and these*

fluids have ceased to be formed; these organs are paralyzed, and their contents are in a stagnating condition, and they pass rapidly into a state of decomposition, while everything taken into the stomach sours, passing rapidly through the patient; forms the watery discharge, for when the fluids cease to be animalized, chemical action sets in.*

As an evidence of the truth of this, when the medicine takes effect, the first sign of convalescence is that the rice-water discharge changes to a dark green or black very offensive discharge. Soon after this, true bile is found in the stools, and the patient is pronounced to be out of danger. Now, it is my opinion that this dark-colored matter that is discharged at the onset of convalescence is mucus, and the various fluids of digestion partly decomposed in consequence of remaining so long locked up in the system; for when the animal fluids stagnate, decomposition follows; and when decomposition passes beyond a certain point, death is inevitable. When the stools become dark and offensive, and true bile is found to pass, the crampings subside, and all the alarming symptoms of cholera vanish; the exterior regains its native heat, and the skin slowly regains its former plumpness.

When the muscle fails to receive that nourishment from the blood which it requires, it is uneasy; it contracts and relaxes, which is the cause of the spasmodic crampings; but as soon as the blood regains its lost action again, imparting life and heat once more to the muscle and system, the spasms return no more.

It will readily be understood how it may happen that when the digestive fluids have lost their solvent principle, the food is no longer retained in a homogeneous mass, but is apt to divide, the solids becoming compact, while the fluid portion becomes sour and passes off in diarrhœa, &c., while the capillary circulation of the bowels becomes more and more loaded with vitiated matter as the diarrhœa continues.

The evacuations from the bowels lack their peculiar fœcal odor, the dejections from the stomach have no smell or color, the diarrhœa is without pain or griping, so is the vomiting; there is no pain, except in the spasms.

The first symptom of the cholera is a torpid condition of the abdominal viscera, depending on a paralyzed condition of the

* See my former Essay on Consumption.

nervous centres, which may continue up to the very moment of the prostrating attack, or it may be followed by diarrhœa. But when this torpid condition is followed by diarrhœa, the forming stage of cholera is prolonged, and sometimes by a simple treatment, or even a little caution, the disease may be cut off altogether. The cholera has three stages—the forming stage, the stage of excitement, and the stage of collapse; the forming stage is generally long, the stage of excitement varies from thirty minutes to two or three days; the stage of collapse is uncertain, but generally short, and very apt to terminate in death.

This white, watery discharge, which is a common symptom in the forming stage of cholera, which is often mixed with undigested matter, and often looks like fermenting beer or yeast, is a different thing as a symptom from the true rice water discharge; for while this frothy discharge continues, a simple treatment will cure the diarrhœa; but when the true rice water discharge appears in any considerable quantity, it is an alarming symptom, for then the disease soon comes to a close, for this is a symptom of an approaching stage of collapse.

The rice water discharge generally comes on suddenly at the onset, or during the stage of excitement, and is often preceded, and always followed by an alarming degree of prostration and clammy wet skin and perspiration.

This rice water discharge looks like a copious evacuation of water, with just starch enough in it to give it a little opacity, with little floculi which settle at the bottom, and are plain to be seen through the fluid.

In 1849, around the borders of cholera districts, on the more high and healthy localities, the diarrhœa continuing for a longer or shorter time, the evacuations became loaded with reddish matter, which looked like strings and bunches of pounded flesh; and after continuing for an indefinite time, an alarming prostration seized on the patients, and they died suddenly, without showing many of the ordinary signs of cholera; yet I look upon this as one grade of the cholera modified by circumstances. This type of cholera was common in many parts of the interior of New York State.

July, 1849. A lady, after having a painless diarrhœa two

weeks, sat down to dinner, and ate nearly twice her usual amount, and while yet eating sickened, vomiting and purging followed, and in three hours she was dead.

Another lady, after having diarrhœa two weeks, got up and prepared breakfast as usual, and sat down to eat, when vomiting commenced, with extreme purging. In thirty minutes I saw her, when she had vomited and purged eight times, and discharged over two gallons of fluids, &c. Extreme prostration followed, with cramps and cold perspiration, and she became almost pulseless. Although the retching and tenesmus continued, nothing passed her afterwards, either up or down. She recovered in a few days under a mild treatment.

A boy, nine years' old, in a family where four deaths by cholera had occurred within a few days, had no signs of diarrhœa before the attack. He came in while I was in the house, and fell down in a spasm with cramps, showing all the signs of extreme prostration, having a pale and haggard look, eyes sunk, countenance beginning to shrink, hands and feet cramping, cold perspiration, and pulse failing. Soon after, purging and vomiting began, which only lasted thirty minutes, during which time he passed over a gallon and a half of fluid. After this, nothing passed him up or down, nor did he cramp or have any more spasms; he died in four hours, in spite of all treatment. His death was like passing into a tranquil sleep.

The fourth case I shall set down for comparison occurred July, 1852. The patient was thirty years old, of a good constitution, and had had no diarrhœa. About noon, he complained of an unusual languidness, during which time the upper eyelids seemed to fall down, the patient having to raise them a number of times with the finger. This all passed off in an hour or two, and he thought no more about it; but on the next day at the same hour, the same thing occurred, which also passed off as before; but on the third day at the same hour an awful feeling of distress came over him; his strength failed, his whole frame became powerless, the skin shrunk, the eyes sunk back, the countenance changed, becoming pale and haggard, the muscles quivered spasmodically, the pulse sank rapidly with cold perspiration. Soon after, the stomach sickened, followed by copious evacuations from the bowels, followed by an alarming

degree of prostration. During this time I saw him: he recovered under a mild treatment, although the diarrhœa continued slightly on the next day.

The reader will find by comparing these cases with those quoted from the epidemic of 1832, that they are alike, with this difference, that this last case came on with paroxysms, periodically, like a remitting fever, and this I attribute to climate, locality, and circumstances.

These cases are laid down as a fair comparison for the two most fatal grades of cholera, with one exception—that is, the periodical paralysis of the eyelids spoken of in the last case. I have only seen three cases where that occurred as a foregoing symptom.

The greatest majority of cases in both epidemics had a preceding diarrhœa; yet all through both epidemics there were cases which had no preceding diarrhœa whenever the weather inclined to be hot and dry.

In all these ague districts the disease assumed more of a periodical character than it did in the non-malarial districts; and more especially was this the case in 1854, when the epidemic was on the decline, so much so that the cholera and paroxysmal fevers were blended together, at which time the cholera and bilious fevers were often mistaken one for the other. Many cases of bilious fever were treated as cholera; for the bilious fever sometimes comes on so nearly like the cholera, that it is very difficult to tell the difference at the onset.

In the treatment of the cholera we must be governed by the circumstances of the case, the state of the weather, and the intensity and grade of the disease, always bearing in mind that a little plain common sense is worth more than all the fictitious theories in the world.

I have used nearly all kinds of treatment, from large doses to small—calomel, opium, camphor, quinine, turpentine, castor oil, the nitric-acid mixture, salts, the extract of bark, boneset, fomentations, hot whiskey, cold water, &c., &c., till I am perfectly satisfied with them as to the result.

I have used them in Missouri, Mississippi, and on the rivers, in Illinois and on the lakes, under many and varied circumstan-

ces, and the following is my conclusion as to what I have found to be the safest and most successful mode of treatment.

I commence the treatment with these powders:

℞ Hydrarg. chlor. mit.;
Pulv. ipec. et. opii. aa. gra. iij.
Opii. quiniæ. sulph. aa. gr. j. vel. ij.
F. chart. no. iv.

Give one, and repeat as often as it is thrown up. When they are no longer thrown up, then repeat them every half-hour, hour, or two hours, according to the intensity of the symptoms, until they have taken effect, and the character of the stools is changed; then stop, after which I sometimes use the nitric acid mixture:

℞ Acidi. nitrici.
Tr. opii. aa. f. ʒj.
Aquæ. camphoræ. f. ʒvj. M.

The dose is a tablespoonful occasionally, sometimes adding a little quinine to it.

During this time I use whatever other means the case may require of a simple nature; but I have never seen any good come from rubbing the patient; but there are many simple things which may be done that can do no harm, and may sometimes do good—such as giving mint tea, using hot air, wiping the skin dry when it is wet, or bathing the forehead and breast in cold water. Wine whey, beef tea, or water gruel sweetened with sugar, should be given as soon as convalescence begins, after which soups are the most appropriate as convalescence proceeds.

When the cholera is decidedly epidemic, all other diseases being lost sight of and mingled in this all-prevailing epidemic, then these above-named powders will be found to be the most successful treatment.

But when the disease fluctuates, verging towards other diseases, or especially fevers, which is apt to be the case in dry, hot weather, or when the disease is on the decline, then it will be found advantageous to increase the calomel to ten, fifteen, twenty, and sometimes to forty grains at a dose, leaving the

other parts of the powder as they were, or to leave the opium out entirely, for I have some doubts if the opium does much good under any circumstances.

In 1854, large doses of calomel were followed by more favorable results than in any previous year, and more especially as the epidemic began to decline. When the disease assumes decidedly an epidemic character, the vital powers sink too fast to bear much medicine; and where there is but little life in the tissues, a large dose of medicine will sometimes act more like a poison than as medicines, when a small dose might do good.

It is worse than useless to give medicine unless the stomach can dispose of it and throw it into the circulation; hence the most malignant case must be treated with the most caution and the smallest doses of medicine. Castor oil and spirits of turpentine are valuable remedies when used after the powders, the effects are generally good, and sometimes decidedly so—at least it has been so in my hands. White sugar is a very good thing for convalescents from cholera where it agrees with the patients, to let them eat as much as they want. There is nothing better to rectify the vitiated secretions of the bowels; it is also good in common diarrhœa.

In 1852, I used calomel, camphor, opium, and capsicum largely, but the result did not please me; and after mature deliberation and reflection I changed my opinion as to the pathology of the disease, and concluded to use simpler means. At this time, being called to a family of Swedes where a number had died, and three more were sick, two of whom I considered hopeless, and thought they would die any way, I gave them calomel, Dover's powder, each a grain; opium, quinine, each a quarter of a grain, to be repeated as often as thrown up; afterwards every hour or two hours, as the case might need. In the worst case, seven of these powders were taken in the first hour, and only three afterwards, when I put them on Huxham's tincture of bark, and they all got well.

This satisfied me as to the principle, and I have used milder and simpler means, and more directed against inflammation in the bowels since, and the result has been perfectly satisfactory.

The diarrhœa which precedes cholera has no outward fever, and the best way to cure it is to give these same kind of pow-

ders every three hours till they take effect, then give quinine, or, what is better, Huxham's compound tincture of bark, in tablespoonful doses three or four times a day. If the diarrhœa returns, repeat the same treatment, after which we need not fear for the result, and the patient will soon get well and stout.

There is nothing more certain, in my estimation, than that chloroform, narcotics, and all this class of medicines which injure the nervous sensibility, are pernicious in cholera, and should be used with the greatest caution, more especially after the first signs of convalescence begin. They are good to check the diarrhœa in order to get the effect of other medicines, and that is about all. Hence, all patent medicines called cholera-drops, hot-drops, astringents, &c., together with the entire catalogue of *sure cures, preventives*, and the like, are pernicious in cholera, as well as in all diseases bearing the semblance of cholera; and the truth is, they have killed nearly as many in this last epidemic as the disease itself.

In St. Louis, in 1832, '33, and '34, as the cholera fluctuated between the true epidemic tendency and other diseases, it afforded a good opportunity to read its true character; and it was the opinion of some of my acquaintance there, that the cholera was a modified or suppressed fever, and had its origin like all other bilious affections, and that it was nothing more nor less than the bilious fever under the all-prevailing influence of an epidemic atmosphere, with an increased amount of malarious exhalations and humidity.

The more I see of it, the more I am convinced of the truth of this view of the subject, for the following reasons:—

1st. Whenever a person at the onset, or at the beginning of ill-health, has taken calomel, so as to thoroughly cleanse the stomach and bowels, and quinine afterwards, he has invariably gone clear of the cholera afterwards.

2dly. The treatment which we find to be the most successful in cholera is precisely that which we use to cure the bilious fever, namely, calomel, quinine, and opium. Added to this is the fact that, when calomel takes effect to produce bilious stools, the patient is generally pronounced to be safe, after which good nursing, with suitable tonics, is all he requires.

3dly. This very powder, which we find the most successful

to cure the diarrhœa and vomiting in cholera, is the very combination (except the quinine) which I have used for ten years in Missouri to cure the vomiting and purging which come at the onset of an attack of bilious fever.

4thly. That in all ague districts the cholera, when not very intense, is very apt to be characterized by, or to be governed somewhat by the type and form of diseases endemic there. Thus in malarial districts it is apt to come on paroxysmally like the ague, and in non-malarial districts it is apt to follow the more continued type, showing plainly that it is governed by the peculiarities of each locality or country, and that it originates from the exhalations of each peculiar locality where it may exist.

5thly. That in Saint Louis, in 1849, it changed its locality every time the wind changed, and whenever the wind set strong from the north-west the disease received a severe check, and when it continued to blow from that direction long at a time the cholera disappeared, and fevers came in its place, showing plainly that the disease was governed solely by the temperature, state, and condition of the air and humidity.

For the cholera to spread much the wind must come from an easterly direction, and this wind is always loaded with poisonous exhalations from decomposing vegetation, when the temperature and circumstances are favorable for it.

6thly. That those small-pox patients at the Quarantine Hospital, New York, who took the cholera and died while yet under the full force of the variolous disease, give one good evidence that when a disease assumes an epidemic form, it then becomes the most intense grade of disease. Thence it swallows up all local endemic or minor affections, and as they fall into the overwhelming tide, like a small stream running into a large river, the small current they produce is faintly seen sometimes, but is soon lost in the greater and stronger current. The cholera, like an overwhelming tornado, bends everything to its own course; it is only the most inveterate of other diseases which leaves an impression on the face of this devastating malady, and even these are only seen when the cholera has little intensity.

7thly. That there is not a foregoing symptom in cholera that

is not common in many of our ordinary endemic diseases; the crampings, vomiting and purging, spasms of the muscles, and shrinking of the skin, are very common occurrences in congestive and bilious fevers, and this brings us to our conclusion, and that is, that the cholera (so called) is produced by the same causes which produce bilious fever, yellow fever, typhus fever, and diarrhœas, and is, in fact, a bilious affection governed by an atmospheric distemperature, or an epidemic state of the air and humidity, which condition of the air greatly favors the generation of malarial poison, and is a favorable medium for the propagation and spread of mildews and poisonous vapors. This humid state of the air predisposes against fevers, hence all diseases which would be fevers or common diseases, under a dry state of the air, by this humidity, surcharged with malaria, will be changed to, or eventuate in diarrhœa, cholera morbus, bilious cholic, &c., and when this state or condition of the atmosphere attains to a certain degree of intensity, as it often does, under certain circumstances, it assumes an epidemic character. This epidemic character, in consequence of humidity, predisposes against fever. Hence, under these circumstances, all diseases will eventuate in, or incline to terminate in, a class of diseases in which fever only comes as a secondary effect, and this train of diseases will be precisely in accordance with the intensity of this epidemic phenomenon and the attending humidity, and will range in accordance with the circumstance, as follows :—

1st. When the atmosphere assumes this condition, it often has the effect to change the type of fevers suddenly from common fevers to a congestive form, in which the reactive fever is lost, or it fails to appear, and the patient is apt to die suddenly.

2dly. To produce epidemic influenza.

3dly. To produce epidemic diarrhœa and dysentery.

4thly. To produce epidemic diarrhœa and cholera, which are the most intense grades of all these affections, and are governed by some peculiar state of the atmosphere which we do not as yet understand, but we call it epidemic.

These peculiar epidemic circumstances, with humidity, may become of an intensity sufficient to produce death with a suddenness equal to the most corrosive poison, as it did on the

French troops at Baix, near Naples,* in 1528, where it killed twenty-four thousand men in a very few days.

Those who die under such circumstances never show any outward signs of fever or of inflammation, but those who recover at such times have not only fever, but oftentimes have the most intense inflammation of the throat, and sometimes of the lungs, stomach, and bowels. The most intense inflammation of the throat I ever treated was that which sometimes follows an attack of cholera.

When death takes place in congestive fever, the patient dies in the chill. There is no fever at the time, simply because the powers of life are swamped at the start, and nature is incapable of resistance, or is unable to bring on the reactive fever, for fever is produced by an effort of nature to throw off something offensive to its well-being. Therefore fever will not appear in any disease where the morbific agents which produced it have attained to an intensity sufficient to prostrate the powers of life at the onset, as is the case in some epidemics; but as soon as the intensity of the cause lessens, the signs of fever appear, and the epidemic is soon changed to a readable, tractable affection, which anybody can understand and manage.

Those who die of the plague, generally die in the chill, or the cold stage, although some die after a partial reaction has taken place, where some signs of fever are seen; so it is with the cholera, and those who recover from these diseases have more or less fever.

I have only one thing more to add at this time, and that is, that in order to pursue this subject farther to advantage, we need some additional information as to the following point, to wit—an exact and true history of the morbid changes, condition of the tissues, and the fluids circulating in the mesenteric glands of persons who die of cholera. I think these points have been overlooked by pathologists, or at least as far as my knowledge extends.

* See my former essays on malarial diseases, published in the New York Journal of Medicine, &c., vol. 8, page 64, vol. 9, page 54, and vol. 10, page 74, old series.

PART II.—REVIEWS AND BIBLIOGRAPHY.

"Nullius addictus jurare in verba magistri."

Pneumonia; its supposed connection, Pathological and Etiological, with Autumnal Fevers; including an inquiry into the existence and morbid agency of Malaria. By R. LAROCHE, M.D., &c., &c. Philadelphia: Blanchard & Lea. 1854. 8vo. p. 502.

THIS work has been for some time on our table, and might have been noticed at an earlier period, but for the desire to do ample justice to the important subject of which it treats, and the able manner in which the author has accomplished his task.

The book has no preface, but it has a long dedicatory epistle to the author's friend, Dr. Meigs, which amply supplies the place of one; and in this epistle are contained items of argument and assertion, not without interest to the curious reader—albeit some of them are not very pertinent to the subject-matter of the text. We revel in prefaces; we consider them to be indispensable to the critic and reviewer. They are like the gnomon on the dial—they show us at the same time the hour of the day, while they make manifest the cause of the tell-tale shadow. They are often abused by both writer and reader; in such instances they become judges and accusers. The writer exposes his egotism and real sentiments, while he believes he is warping the judgment of the reader. On the other hand, he who neglects to read them frequently loses the best of the book and a key to its proper interpretation.

Now, in this dedicatory letter we have the whole scope of our author's labors explained.

"All the credit to which I think myself entitled—if any can be considered legitimately due to me—is for having collected, within a comparatively small compass, the main facts bearing on the question at issue, derived from reliable sources in various sections of the globe, and from the results of my own personal observation, for having examined, to the best of my ability, the subject in all its bearings; for having demonstrated, in as forcible a way as I was able, that the idea of the identity under consideration" (the identity of pneumonia and autumnal fever), "*is founded on insufficient and incorrect data, and is, in fact, little more than a dream of the imagination;* and at the same time for having proved that etiologists, who regard the various forms of autumnal fevers as due to the action of particular poisons floating in the atmosphere of specific localities, *have just cause for en-*

tertaining that belief. This, I repeat, is all I have attempted to perform."

The lazy or indifferent reader might here arrest his study of this book, and yet go abroad with as much information touching the author's work as if he had conned over every line in the 500 pages—might speak with confidence and authority of the author's views, as if he had really followed him, link by link, through his chain of arguments. The industrious student, however, would be prompted to examine and analyze the logic, the pertinency, and value of the author's illustrative reasoning and the soundness of his deductions;—and in this case he would be amply repaid for such pains-taking. We hope to be able to carry our readers a little deeper into the work before us, so that they may judge, by other means than the writer's becoming modesty, of the true extent and value of his labors.

Before we go farther, however, let us remark what is said on those extraneous matters, to which we have already briefly alluded.

"From all I have seen, I can entertain no doubt that more good is to be effected by a patient accumulation and comparison of important facts, and by endeavoring to draw from the whole, correct philosophical deductions, than by adopting a different course, *too common among the professional writers of this country* and elsewhere, who, discarding the results of the experience of former and present times, and relying exclusively on their own too often scanty observations, make up for their other deficiencies by an indulgence in theoretical explanations, and sneer at the patient, slow, and cautious observer, and the erudite student. That the tendency to the course here adverted is displayed by a goodly number of physicians among us is, as you know full well, too true to be denied. It has long been to *me*, and to *others*, on whose natural good sense, sound judgment, and medical scholarship we may rely, a source of deep solicitude, threatening, as it does, if allowed to continue unchecked, to affect injuriously our literary and scientific character, and to retard the advancement of useful professional knowledge among us." *

From this text our author carries us over the whole ground of our medical literature and professional knowledge, and the circumstances which have exercised an injurious influence on them. There is doubtless a large amount of justice and truth in the sentiments which are enunciated, and which it would be well for every intending writer to consider carefully before he rushes into print. But from the peculiar tenor of the whole of this portion of the author's letter, we think that there is a considerable share of old fogyism in it. "Young physic,"

* The italics in this sentence are the reviewer's.—Ed.

although not distinctly named, is evidently aimed at; and some of the shafts, well directed and striking home, are nevertheless tipped with spleen and gall. If our literature is in its infancy—if it be incongruous, wasteful, and, to a great extent, useless—the good that is in it is fairly proportioned to the practitioner-students. We venture to affirm that not ten men in a hundred, after they have commenced active practice, ever look at books for their own sake; some practical compendium, some "household medicine and surgery," ready for the emergency of doubt or difficulty, constitute the entire stock of medical literature to them; and if the current periodical press is looked at, it is simply to see what the schools are about, and to read the report of some interesting case which Brown of ——— has given, and which was seen in consultation. Among the true readers and students of the profession, there can exist but little fear of being misled or carried away by ill-digested theory or imaginative speculations. The true standard of both the literary and scientific value of medical writings is easily determined; and no one would waste his time in pouring over pages which do not yield him something to take advantage of in practice, or to think upon in the formation of his opinions. Medical literature is generally thoroughly sifted by competent reviewers before the works themselves pass into circulation among the mass of the profession; and few men, we opine, would purchase a book which could not stand the test of a fair criticism. But the same charge, urged by our author against the medical literature of this country, applies equally to that of every other country, and to every department of literature. We do not see that it is a fault that men write too much; the very habit of writing engenders the necessity of thinking and reading. Let the young physician, then, write as much as he pleases—he will, in time, learn to write *well;* the senior men will bide their own time for reading their lucubrations; and when they do condescend to look into one of the more perfect and valuable contributions of the former, they may find some things both true and new.

We have dwelt on this point, because we were glad that Dr. La-Roche's merits as an observer, thinker, and author, place him without the category of useless writers, and therefore we could use his own strictures with the more freedom as the text of our remarks. Pass we now to the book proper.

We have indicated above that part of the scope and purpose of the work was to disprove the connection of pneumonia with autumnal evers of a malarious origin. This has been well and logically done.

There is a slight superfluity in the diction employed, but the premises are clearly established, the illustrations and examples judiciously chosen, and the whole proposition thoroughly worked out. We know well that an ingenious and well-stored mind could frame an opposite argument to read as pleasantly, but it would fail to convince as the book before us does. Our desire is to induce the profession to read and study the work for themselves, feeling convinced that they will benefit much by its perusal, and we shall therefore confine ourselves to a mere general outline of this portion of our author's labors.

Showing, by reference to the writings of the older authors, that this idea has been entertained for centuries, he proceeds to consider the question under its several aspects.

1st. That pneumonia is common where fevers are seldom or never seen.

"With us," he says, "pneumonia prevails, during certain periods of the year, in localities where autumnal fevers, especially intermittent, rarely if ever originate. In Philadelphia—and the same may be said of other cities—such a thing as a case of the latter disease is seldom encountered."

Again :

"Within the limits of the bills of mortality, including the city proper, where periodic fevers are scarcely ever seen, and a few of the fever districts, the proportion of deaths from inflammation of the lungs and bronchiæ, in thirteen years—1836–1848—amounted to 1 in 11.7."

Apart from the bearing which this statement has on the argument, we may be permitted to hazard the opinion that it seems to reveal a very large ratio of mortality from this cause. We have not the statistics of other cities and countries conveniently at hand for reference, but the impression on our mind is that the average proportion of deaths from these causes may be stated at 1 in 17. He quotes authority in support of the fact that in the New England states and in many localities throughout the world, where malarious fever once existed, it has now, from a combination of causes, disappeared, but that pneumonias have not disappeared with them. This point is amply illustrated by reference to the figures yielded by reports from various authorities, in different countries.

2d. That pneumonia is not necessarily present where fevers are common.

This is the reverse of the former proposition, and is amply sustained by reference to abundant authority of a high order.

"Dr. Forry, in his account of the climate of the United States, remarks of pneumonia, pleurisy and catarrh, that they are invariably less prevalent in the moist and changeable climate peculiar to the sea coast and large lakes, than in the dry atmosphere of the opposite locality; and we all know that it is precisely in the former localities that fevers abound. In the northern division, the average number of cases of pneumonia in 1000 was found to be 45; intermittent and remittent fevers, 231. In the middle division, the averages in 1000 were 74.5 of pneumonia, and 739 of fevers; and in the southern division, pneumonia, 43, fever, 598."

In the East and West Indies, Canada, Africa, Spain, &c., the same facts are observable. He thus sums up this argument:

"The result being different—pneumonia occurring where autumnal fever has never originated, or where, if it has done so, it now seldom prevails—we are warranted in concluding that the causes of the two diseases are different; that the one may exist without the other; that when the two diseases show themselves at the same time, and in the same locality, two sets of causes necessarily exercise their baneful influences, and produce, not one disease assuming different forms, and presenting different aspects, but two distinct complaints; that, consequently, pneumonia cannot be justly held up as forming a part and parcel of autumnal fevers, which, as regards etiology, are governed by very different laws, and influenced by very different agencies."

3d. The fact that the two diseases prevail in different seasons is clearly established; and,

4th. That they appear under the influence of opposite winds.

Lastly, he points out that the altitudinal range of the two diseases is not the same.

The author then goes into the great question of the existence and morbid agency of malaria. The range of investigation necessary fully to elucidate this question is most extensive, and a glance at the number of authorities quoted will at once convince the reader how industrious the author has been in his collation of evidence, and we have no doubt that the inferences he draws from them and his own conclusions are correct. That there does exist a certain condition of atmosphere—if not a specific element in its composition—in certain localities on the globe, which produces certain morbid phenomena in the animal economy, is indisputable. The researches of chemistry have failed completely to demonstrate it, nor are there any means by which we can ascertain with certainty its physical existence—but nevertheless we are fully justified by analogy, by positive evidence of experimental results, in affirming our belief in the influence it exerts. We must await the fruit of a more subtle and refined chemistry, or

the accidental discovery of some means of manifestation of the true cause of these phenomena; but in the mean time, for all beneficial practical purposes, it is well to believe in its existence, to regard its nature as we know it, and to derive our rules of practice from the light we enjoy. The author then proceeds to draw a comparison between pneumonia and autumnal fever, with reference to their causes, mode of progression, symptoms, anatomical characters, and the circumstances by which they are influenced; extending his observations and comparison on the powers of acclimatization, age, sex, and races of people; and combats the idea that the prevalence of the two diseases at the same time and in rapid succession, is any proof of their identity—showing also that by their combination they may so modify one another as to give rise to disease which must not be considered as a peculiar form of either.

We regret that it is out of our power to give as close an analysis of Dr. La Roche's contributions to the stock of our knowledge on this subject as we should desire; but we trust enough has been said to exhibit the value of his labors in reference to the special questions treated by him. There are some few assertions which might be questioned, and occasionally a little false philosophy on minor points which could be combated, but these do not affect the whole force of his argument, or the merit of his labors; and we cordially recommend the book as containing a very complete resumé of good information brought up to the present day—enriched by several facts of great value, the fruit of the author's observation. ‡‡

Traité de Chimie Anatomique et Physiologique Normale et Pathologique, ou des principes immèdiats Normaux et Morbides qui constituent le Corps de l'Homme et des Mammiféres. Par CHARLES ROBIN, Docteur en Medecine et Docteur en Sciences, &c., et F. VERDEIL, Docteur en Medecine, Chef des Travaux Chimiques à l'Institut National Agronomique, &c., &c. Tom. III., accompagnè d'un Atlas de 45 Planches, &c. Chez J. B. & H. Baillière, Paris, London, et New York.

A Treatise on Anatomical and Physiological Chemistry, both Normal and Pathological, or of the Normal and Morbid immediate principles which constitute the body of Man and the Mammiferæ. By CHARLES ROBIN, Doctor in Medicine, and Doctor in the Sciences, &c., and F. VERDEIL, Doctor in Medicine, Chief of the Chemical Works at

the National Agronomic Institute, &c., &c. Vols. III., octavo, pp. 723, 581, 573, with an Atlas of 45 Plates. Published by J. B. & H. Baillière, Paris, London, and New York.

WE entered upon the examination of this work with high expectation of its merits. Both of its authors are thoroughly educated medical men. M. Robin is also Professor of General Anatomy, and member of several of the medical societies of Paris, and one of the best microscopists in that metropolis, as his work on the "Microscope and Injections in their application to Anatomy and Pathology," and his "Natural History of the Vegetable Parasites which grow on Man and Living Animals" sufficiently attest. The former was published in 1849, and the latter in 1853. M. Verdeil is also Professor of Chemistry, and member of several of the societies just mentioned. Moreover, the motto* which the authors have adopted for their work, gives assurance against those exclusive views of chemical actions in the human body, and those purely-chemical theories of life and vital action which characterize most works on organic chemistry.

Nor have we been disappointed in our expectations. We find many prevalent errors exposed in this work in regard to the chemical composition and the chemical reactions of the human body, and many entirely new statements in regard to these subjects. Of many of the latter, time and the investigations of others also can alone determine the value. Meantime much has, at all events, been done, by showing us some of the errors which are so generally received by the medical profession, and made to constitute the very basis of our physiology and pathology;—for though we would utter a caution against receiving unquestioned all which the authors have proposed instead of that which they show to be unfounded, we consider that both physiology and pathology will be essentially benefitted by being severed from many of the chemical errors hitherto associated with them, and essentially advanced by new investigations to which this work will give an impulse and direction. Extending, as it does, over 1877 octavo pages, and treating its manifold subjects in an almost exhaustive manner, we can only notice such topics as are of special interest to the histologist, the physiologist, and the pathologist; and this we will attempt to do, even at the risk of prolixity. And premising that the plates are splendid illustrations of their particular subjects, we proceed to our task.

* "Chymia egregia ancilla medicinæ, non alia pejor domina" Lind, Traite du Scorbut. Paris, 1736, t. 1, p. 78.

The object of the work is to put "anatomists and physicians in a situation to know exactly the intimate and molecular constitution of the organized substance [of the body], in its three fundamental conditions—solid, demi-solid, and liquid;" to examine, in an organic point of view, each of the bodies (immediate principles), which, by their union, molecule to molecule, constitute this substance. It is "not to study the *organized matter itself, but the parts which compose it.*" The former will be considered in a subsequent work (p. 1).

These parts are termed "immediate principles," and which are defined to be, "*the last bodies constituting, or having constituted the organism, to which the latter can be reduced by anatomical analysis; and which admit of no farther subdivision into several kinds, without chemical decomposition.*" Sugar, gum, starch, cellulose, water, &c., are immediate principles to a plant—and water, albumen, fibrine, fat, urea, &c., to an animal. The carbon, oxygen, hydrogen, &c., composing these, are the *elementary* or *mediate* principles of the plant, or the animal, respectively (p. 120).

The expression, "immediate principles" is borrowed from Chevreul, who thus defends its use: "Some scientific writers think this expression objectionable, since it is not reasonable to apply the word principle to compound bodies. I do not participate in this opinion; for when we consider in a general way the composition of a salt as established by Lavoisier, it is apparent that it is constituted by the union of an acid and an alkali, rather than by the elements of the acid with those of the alkali; since if these elements are united in other proportions than such as constitute an acid and an alkaline body, they no longer give us the idea of a salt. Hence it seems proper to say, that the acid and the alkali are the two immediate principles of the salts. It is the same with sugar, gum, starch, lignine, &c., in respect to a plant; and with fibrine, albumen, cellular [areolar] tissue, &c., in respect to an animal. These substances should be regarded as the *immediate principles* of the plant, or of the animal to which they belong; while oxygen, nitrogen, carbon, and hydrogen are their *remote* or *elementary principles.*"*

Thus the subjects of the work are intermediate in their character between *organic chemistry*, as generally understood, on the one hand, and *histology*, or the study of the tissues, on the other. They are therefore of the greatest importance as preliminary to the latter.

* Chevreul, Recherches sur les corps gras d'origine animale. Paris, 1823, p. 4–5.

The immediate principles in the body of man and of the mammiferæ are 92 in number; and are divided into two groups—(1) *crystallizable* or *volatile*, without decomposition; 2d, the *non-crystallizable* or *non-volatile*, independently of decomposition. The latter are far less numerous, but generally form the major part of the corporeal mass.

The *first* group is divided into two classes—(1) Principles of *mineral origin* (28 in number); (2) Principles formed within the body by *dis*-assimilation, and of *organic* origin (46 in number).

The *second* group is not divisible, and forms by itself the 3d class —*organic substances* (18 in number).

The first class is divided into two subdivisions (tribus). (1) Those principles which are *gaseous* or *liquid*, and *not saline* (7 in number); (2) Those which *are saline*, or *salts* (21 in number).

The second class is divided into four subdivisions: (1) Acid, or saline principles; (2) Nitrogenized *alkaloids*, usually so called, neutral nitrogenized compounds; (3) Neutral non-nitrogenized compounds, or sugars; (4) Fatty and saponaceous principles, or compounds.

The third class includes three subdivisions: (1) Those naturally in a *liquid* state, 7 in number; (2) The demi-solid, or solid, also 7 in number; (3) Pigmentary substances, also solid, or demi-solid, 4 in number.

The following table will give a view of the classification just described:

FIRST GROUP—*Including two Classes.*

FIRST CLASS.—*Principles of Mineral Origin*, 28.

1. ***Gaseous***, and ***not Saline***, 7.

Oxygen,
Hydrogen,
Nitrogen,
Carbonic acid,
Proto-carburet of Hydrogen,
Sulphuretted Hydrogen,
Water.

2. Salts—21 in Number.

Chloride of Sodium,
" Potassium,
Fluoride of Calcium,
Hydrochlorate of Ammonia,
Carbonate of Lime,
Bicarbonate "
Carbonate of Magnesia,
" Potassa,
Bicarbonate "
Carbonate of Soda,
Bicarbonate "
Sulphate of Potassa,
" Soda,
" Lime,
Basic Phosphate of Lime (Bones),
Acid Phosphate "
Phosphate of Magnesia,
Neutral Phosphate of Soda,
Acid " "
Phosphate of Potassa,
Ammonio-Magnesian Phosphate.

SECOND CLASS.—*Principles of Organic Origin formed within the body by dis-assimilation*—46.

1. Acid, or Saline Principles, 23.

Lactic Acid,	Hippuric Acid,
Lactate of Soda,	Hippurate of Lime,
" Potassa,	" Soda,
Lactate of Lime,	" Potassa,
Oxalate of Lime,	Inosate of Potassa,
Uric Acid,	Pneumic Acid,
Neutral Urate of Soda,	Pneumate of Soda,
Acid " "	Taurochlorate "
Urate of Potassa,	Hyocholinate "
" Magnesia,	Glycocholate "
" Lime,	Lithofellic Acid.
" Ammonia,	

2. Neutral Nitrogenized Compounds, 6.

(Nitrogenized *Alkaloids*.)

Creatine,	Chlosodate of Urea (Urea with marine salt),
Creatinine,	Cystine,
Urea,	Allantoin.

3. Neutral Non-Nitrogenized Compounds. Sugars, 2.

Sugar from the Liver. Sugar of Milk.

4. Fatty and Saponaceous Compounds, 15.

Cholesterine,	Caproate of Potassa, Soda, &c.
Seroline,	Oleine,
Oleic Acid,	Margarine,
Margaric "	Stearine,
Stearic "	Elaierine
Oleate of Soda,	Stearerine,
Margarate "	Cetine.
Stearate "	

SECOND GROUP—*Constituting the Third Class.*

Organic Substances, or Coagulable Principles, 18.

1. Those naturally liquid, 7.

Fibrine,	Pancreatine,
Albumen,	Mucosine,
Albuminose,	Ptyaline.
Caseine,	

2. The solid and demi-solid, 7.

Globuline,	Cartilgeine,
Crystalline,	Osteine,
Musculine,	Heratine.
Elasticine,	

3. Pigmentary substances, 4.

Hæmatine, or Hematoine, Biliverdine, Melanine, Urrosacine.

We have taken some pains to construct the preceding table, since the authors have not done so; though such a view of the arrange-

ment of the subjects treated in the work, greatly facilitates both its study and its analysis.

We cannot stay to consider the general topics discussed in the first volume. It closes with a full historical account of this department of science (termed Stoechiology), from the time of Van Helmont down to the present day. The following are the principal names mentioned in this account, the whole time being divided into three periods:

1*st Period.*—Robert Boyle, Kunkel, Papin, Bohn, Vieussens, Stakl, Barchusen, Juncker, Boerhaave, De la Garaye, Macquer, Shaw, Baume, Rouelle, John Hunter, Schèele, Guyton de Morveau, Lavoisíer, Van Bochanté, and Sage.

2*d Period.*—Fourcroy, Choptal, Plenk, Thènard, John, Berzelius.

3*d Period.*—Chevreul, Kurt, Sprengel, Huënefeld, Blainville, Raspail, Burdach, Dumas, Liebig, Mulder, Lœvig, Simon, Henle, Lehmann, Mandl, Donne, Foucault, Gorup Bèzanez.

The second volume commences the consideration of the immediate principles contained in the preceding table, and in the order of the same. It disposes of the whole of the first group, except the fourth division—the fatty and saponaceous bodies—of the second class. The mathematical (the number, form, &c.), the physical, the chemical, sensible, and organic properties of each class precedes the discussion of the individual principles included in it.

With the contents of the last two volumes we shall endeavor to make the readers of the MONTHLY more especially familiar; though we must confine ourselves to the immediate principles of the human body.

The amount of free *oxygen* in the body (in arterial and venous blood, and in the air-cells and bronchial tubes, and sometimes in the stomach), is about 77¼ grains, on an average. The whole amount of arterial blood is, to the venous blood, as 2 to 3. But arterial blood contains more oxygen than venous in the proportion of 2.41 (or even 3) to 1 (or 1.17). And the whole amount of blood is (12 to 13 kilogrammes) about 26 to 28 lbs. Hence there are about 9⅗ cubic inches (150 cubic centimetres) of oxygen in the arterial blood, and about 14$\frac{11}{25}$ inches (225½ cub. cent.) in the venous blood; and 61 grains by weight in all. It exists in the blood in a liquid state—a state of *solution*, and yet in *chemical* combination also (p. 35).

The amount of oxygen consumed in respiration by an inhabitant of Potosi, 13000 feet above the level of the sea, equals only ⅔ of that consumed by an inhabitant of a maritime city. Of course the amount of carbonic acid given off from the lungs is in the same proportion.

The theory of Liebig adopted by French and German chemists generally, that in case of the higher animals, the oxygen consumed is destined to combine finally with the calorific (respiratory) elements of the food (sugar, starch, fat, &c.), thus forming carbonic acid, water, and urea, and for the *purpose of producing and maintaining the animal heat*, is believed by the authors to result from a very narrow and erroneous view of the subject. Heat is the *result* of nutritive changes of all kinds; but not the *object* of them. It is developed principally in the blood. But we must refer for the arguments and the facts as to how far French and German chemists disagree in respect to the substances which are thus consumed by the oxygen, to pp. 52 to 64.

Hydrogen exists normally in the stomach, colon, and cœcum, forming, of all the contained gases, 3.55 per cent. in the first organ; from 5.4 to 11.6 per cent. in the colon; and 7.5 in the cœcum. This hydrogen is formed in the alimentary canal; but precisely how, has not been ascertained. There is also a very small quantity in the gases expired in normal respiration. None has, however, yet been found in the blood, though it might be expected to exist there in some slight degree (p. 64).

Nitrogen is found in the air-cells of the lungs, in the blood, and in the intestinal gases, both healthy and morbid. The whole amount in the lungs and the blood varies between 534 and 328 cubic millimetres,* or from 46.755 to 47.52 grains. It forms from $\frac{1}{6}$ to $\frac{1}{10}$ of all the gases in the blood, there being more in arterial than venous blood (1.51 to 1), and is *dissolved* in this fluid. Animals suffering from emaciation inhale more nitrogen from the atmosphere than they return to it by expiration.

Carbonic acid gas exists in the lung, the blood, the alimentary canal, and the urine. The amount dissolved in the blood would be sufficient in its gaseous state to occupy from $\frac{1}{5}$ to $\frac{1}{3}$ the space filled by the blood. There is more in arterial than in venous blood (123 to 100), as is the case with oxygen and nitrogen also. It is dissolved in both the serum of the blood and the corpuscles; while oxygen is dissolved principally, if not exclusively, in the latter alone. The fact of its greater amount in arterial blood confirms the idea that it is formed in the lungs by the action of pneumic acid on the carbonates in the blood.

Carburetted and sulphuretted *hydrogen* exist constantly in the air

* Or between 1-29 and 1-47 cubic inch—a millimetre being 1-25 inch.

expired from the lungs, but in too small an amount to be calculated. A small amount is found in the alimentary canal, in the large intestine only. The sulphuretted hydrogen is always in smaller amount than the other gases in the intestine. This gas is also disengaged in abscesses near a mucous membrane (e.g., near the anus), by *putrefaction* of pus, or of organized tissues; and in some rare cases, if the abscess is elsewhere situated (under the deltoid even, on the limbs and in the kidney, p. 111). [It is also frequently developed in connection with necrosis, or caries of bone. E. R. P.]

The Protoxide of Hydrogen, or Water.

Pure water (as obtained by distillation) is found in every fluid, and every tissue,however solid (even enamel), in the body, uniting in true, binary combination (though a feeble one) with it, and forming one of its essential constituent parts.

The cubical mass of the body varies from 62 to 70 litres* in the male, and from 46 to 53 in the female; equal in the former to a cube of 40 to 41 centimetres (16 to 16.4 inches) on a side Of the preceding quantity, at least 42 or 43 litres are water; or the latter alone equals a cubic mass 36 to 38 centimetres (14.4 to 15.2 inches) on a side. About $\frac{2}{3}$ of the weight of the body is due to its water, and $\frac{1}{3}$ to the solids (Burdach). Not quite $\frac{3}{4}$ is water, say our authors. Of course the proportion is greater in infancy and childhood. But at all epochs it is the most general and the most diffused of all the immediate principles.

A very interesting table is given (pp. 115–18), showing the proportional amount of water in each fluid, and in each tissue and organ in the body, which we cannot copy here. It appears that with the exception of enamel, dried cuticle, teeth, bones, tendons, and elastic tissue, there is not a tissue in the body which is not more than one-half water. Enamel is only $\frac{1}{5\,0\,0}$ water (Senac), and the substance of the testis $\frac{8\,8\,7}{1\,0\,0\,0}$ water. The human brain is $\frac{7\,8\,0}{1\,0\,0\,0}$ water (Denis). But no tissue, or fluid in the body, has always precisely the same amount of water, or of any other immediate principle. It varies constantly, though within narrow limits, from $\frac{1}{1\,0}$ to $\frac{3}{1\,0}$; and the mean is given in the table alluded to.

But the other immediate principles vary with the variations in the water. Hence the error of those who would find the cause of a disease in one tissue or fluid alone, or who would cure them by the ad-

* A litre is very nearly a quart in measure.

ministration of water alone, or of any other immediate principle exclusively.

In all the tissues and organs just mentioned, in which less than one-half is water, and in many cases where the water constitutes $\frac{77}{100}$ (muscle) to $\frac{85}{100}$ (cortical substance of calf's brain) of the whole, the water is in a solid state, and entirely different from any condition in which it is found in the mineral kingdom. Hence muscle has more consistence than blood, and the cortical substance of the brain more than synovia; though these two fluids have less water than the solids compared with them. This water is therefore in chemical combination in the tissues, and not interposed between their elements.

In the fluids the water is, of course, in a *fluid* state, and here holds solids in solution. In a single instance only—the halitus from the lungs—is the water in a *gaseous* state.

Mere solution is chemical combination, but the feeblest known. Water combining with a solid in less amount than sufficient to dissolve, is *fixed* in it, itself becoming solid; in increased quantity, it dissolves the other substance, that, on the other hand, becoming fluid. The *organic substances* (albumen, musculine, &c.) have the peculiar property of fixing an amount of water of far greater volume and weight than themselves, while they still remain, and also render the water *demi-solid*. Organs formed principally of these substances, however (and hence containing much water, as explained), alone *live* independently and on their own account; alone present the double vital phenomenon of composition and decomposition. Other tissues and organs manifest only a vegetative, and not animal life.

But it is not, however, pure water—the mere protoxyde of hydrogen—that is fixed and solidified by albumen, gelatine, &c., but a *saline solution* instead. Hence they swell when immersed in pure water, since a greater amount of the latter is generally fixed.

The muscle of the calf contains more water than that of the ox; but an equal weight of human bone (separate from the marrow), whether from the infant or the adult, contains the same amount of water.

A table is given of the diseases in which the blood contains an abnormal amount of water, whether in excess or diminution. Since, however, the blood is, in almost all cases, taken from the arm alone, while that of the vena portae, of the hepatic veins, and of the renal veins, is different, and cannot be examined in man; we need farther investigation in regard to the blood in these latter vessels, in case of

diseased animals, that we may thus infer its condition in them, in case of disease in the human body.

The amount of water in the urine voided in twenty-four hours, in health, may vary from 12,000 to 22,500 grains. Its amount is increased in polydipsia, chlorosis, diabetes, and by a hysterical paroxysm.

Whence comes the water in the body? for it both enters and leaves the body already formed, *i. e.*, as protoxide of hydrogen. The water in the ovum, and in the embryo during development, is obtained from the body of the mother—first by imbibition from the mucus of the Fallopian tube by the vitelline membrane; then by th villi of the chorion; and when these become vascular after the development of the allantois, they derive it from the mother's blood till birth. Subsequently it enters the blood from the alimentary canal, having entered the latter with the food, or as a beverage; accidentally entering also (as by bathing) by the skin. M. Barral finds that more water leaves the body than enters it, and shows that the surplus is formed in the body by the combination with hydrogen of the oxygen in the respired air, and the excess of oxygen over the hydrogen in our aliment. Our authors consider it doubtful (1st) if there *is* such an overplus of water; and if there is, it is doubtful (2d) if it is formed in this way. The water makes its exit from the body by the kidneys, in the fæces, by the skin, and from the pulmonary mucous membrane, about one half escaping in the urine.

Uses of water in the body. It gives to organic substances their mechanical properties; to fluids their fluidity; to demi-solid substances their elasticity and particular consistence; and different properties to the hard parts—to cartilage its flexibility, to bone its tenacity. But in the last, the water is more intimately united; and being once separated will not unite again. Water gives to all parts the possibility of manifesting their chemical properties also; and hence that instability characteristic of organized tissues, and the constant acts of combination and decomposition. But it also, with these advantages, confers the liability to sudden changes in the blood, or in the organs, from putrid, purulent, or mephitic infections; facilitates the transmission of poisons; procures the aptitude to decomposition; and hence, in many cases, induces sudden death.

Second Division of the First Class of Immediate Principles.

This division includes all the *salts*, of which there are twenty-one, as shown in the table. The ashes resulting from the combustion of

each tissue represent the salts therein nearly, but not precisely ; as the carbonic acid of the carbonate is set free by too elevated a temperature. None of these compounds are combined with those of the second class, except common salt, which combines with urea (chlorosodate of urea). They are, like the others, dissolved in water ; or being dissolved, they may then serve as solvents for the latter, *e. g.*, solutions of salts with alkaline bases in the serum of the blood, dissolve certain fatty principles there. It is in this combination with soda that urea exists in the blood, in the vitreous humor of the eye, and, in part also, in the urine.

But some of these, especially several of the phosphates and carbonates, combine directly with one or two of the organic substances (third class), whence result certain forms of organized substance, or bones, teeth, &c. But salts also enter into the constitution of every organized tissue, though sometimes in the slightest degree, in the same manner in which the phosphates are united to the ostéine (p. 161). Thus the principles of the second class make part of the organized substance, only in an accessory manner, and are directly rejected, mostly, in the urine and the bile. Their accummulation may become destructive even, as when fat accumulates in the epithelial cells (*e. g.*, of the kidney or the liver), and, in other cases, of fatty degeneration. Very corpulent persons do not attain to an advanced age. The adipose tissue is the only one formed almost exclusively of principles of the second class.

The salts under consideration, especially the earthy salts, by their union with the principles of the third class, manifest a power in aid of assimilation ; they also aid in *dis*-assimilation, by yielding their bases to acids of organic origin (uric, hippuric, &c.), and by these latter combinations also, the animal heat is, in part, produced. Moreover, their presence with the principles of the second class alone enables several of the latter to combine with oxygen, and even to displace it from metallic oxides.

The principles of the first and the third classes alone are alimentary—are assimilable ; and both these are indispensable. Those of the second class are already dis-assimilated substances, and pass soon into the state of carbonates, and then of carbonic acid, or are rejected, either unchanged or after isomeric catalysis, in the urine. Hence food not containing *both* these classes cannot be assimilated, and will not long sustain life (*e. g.*, muscle, albumen, sugar, &c., *alone*).

Leibig discovered in respect to this class that the phosphates and

carbonates of soda may replace each other in the blood without detriment. Hence, if the food contains only phosphates, without carbonates—*e. g.*, bread and meat—the blood contains no carbonates; if potatoes be added to the preceding, the blood contains some carbonates; and if the diet be of fruits alone, the blood acquires the character and the composition of that of the ox or the sheep. The urine also contains alkaline phosphates in the first case, and alkaline carbonates in the latter.

The observations of Bence Jones, to the effect that, in chorea and delirium tremens, the sulphates and urea are increased in the urine, while the phosphates are diminished, and that in encephalitis the phosphates and the sulphates are considerably increased—are noted on p. 173.

1. *Chloride of Sodium, or Marine Salt,*

Is contained in every fluid and every solid in the body, except that it has not yet been found in enamel. The urine of those in *articulo-mortis*, is almost entirely deprived of it. It is the most abundant of the principles of inorganic origin, and is found during the whole period of existence, even in the ovule.

Its whole amount in the body of the male, is about 277.05 grs.
" " female, " 234.9 "

In human blood the marine salt bears to all the other salts taken together the proportion of 2.4 (even 3) to 1; and the proportion is very similar in the blood of other animals. Muscular tissue contains very little of it, and Braconnot found none at all in the heart of the ox.

It exists in a liquid state in every part, except the bones, teeth, and cartilages. It is always dissolved in water, and never chemically combined in any tissue with the peculiar elements of the latter. Thus also it is never found in the organism in an isolated state.

There is three or four times as much common salt in the blood as in the muscles, and more in the urine than in the blood. The proportion in the urine, however, varies with the nature of the aliment; that in the blood does not. There is a large amount of chloride of potassium in the muscles; and this salt has very generally been confounded with the chloride of sodium in analyses of the different organs and tissues.

The presence of common salt in the blood is a condition essential to the endosmosis from the alimentary canal into the blood, of alimentary substances dissolved in water, and of the solution of albumen,

and perhaps of the fatty principles. In connection with albumen, it prevents the solution of the blood corpuscles in the serum (p. 197). It is also a condition of the acts of assimilation and *dis*-assimilation; hence the suppression of it in food produces chlorosis, (even in man,) languor, weakness, and paleness, and even œdema. It produces a more abundant secretion, both of saliva and of gastric fluid, and thus facilitates digestion; hence needed most if the food be principally vegetable, or in case of herbivorous animals, since this kind of food contains very little of this salt.

Marine salt enters the stomach in the food and drink; the average daily amount consumed being, according to M. Barral, 4.75 grains in the food, and 109.2 grains added as condiment—more than this amount, however, being used in the latter way during winter. It leaves the body in the urine, the fæces, the sweat, and the mucus.

2. *The Chloride of Potassium,*

Is found in milk, the muscles, the liver, cerebro-spinal fluid, the blood, nasal mucus, saliva, bile, gastric fluid, and the urine. It exists also in the fluid rejected in choleras, and in that of dropsies. In the preceding alone has it thus far been found. It constitutes from 0.4 to 1 part in 100 of muscle; and only .03 to 100 in human milk. In blood the quantity has not yet been specified.

It is always dissolved in water, like common salt. And since in human blood the phosphate of potassa is always accompanied by chloride of sodium, and these two salts may become mutually decomposed into chloride of potassium, and phosphate of soda—the salt under consideration may thus be formed in the body, as well as be introduced in muscle used as food.

3. *The Fluoride of Calcium,*

Is found only in bones and teeth (both the enamel and dentine). Marchand finds 1 per cent. of it in human bone; the quantity in human teeth has not been determined. Berzelius found in the ox 4 per cent. of this salt in the enamel, and 5 per cent. in the dentine. It is not known from what alimentary substances it is derived, how it leaves the body, nor the part it acts therein.

4. *Hydro-chlorate, Carbonate, and Bi-carbonate of Ammonia.*

Nothing is known of the functions of these; and it is not demonstrated that the last two are immediate principles. The first exists in the tears, the saliva, and the urine. Whether formed in the body, or derived from the food, is unknown.

5. *Carbonate and Bi-carbonate of Lime.*

The presence of the latter is only accidental in the human body. The carbonate of lime exists in bones, teeth, cartilages, and the blood. Otoconites are formed almost entirely of it. Traces are found in the ashes of the lungs. It is also found in the concretions (incorrectly termed ossifications) of the muscles, arteries, valves of the heart, in false membranes, around fibrous tumors of the uterus, in the dura mater, and in the pineal body. Preputial, salivary, tonsillary, lachrymal, and certain pulmonary concretions, tubercles (cretaceous and the common form), and certain urinary, biliary, and arthritic calculi, contain this salt. In all cases it is combined with the phosphate of lime. It is sometimes also found in alkaline human urine. Landerer has found it in the crystalline lens affected with cataract.

This salt is found in most of the tissues and the fluids in an amorphous state, *e. g.*, in the pineal gland, or the plexus choroides, &c.; but otoconites are formed entirely of carbonate of lime, in crystals of the rhombohedral form, which is peculiar to it. These crystals are beautifully represented in the atlas accompanying this work.

It is probably in a solid state in bones, teeth, and cartilage, and certainly so in the concretions before mentioned. It is certainly in a liquid state in the blood, but not in direct solution, since water very slightly dissolves it. The chloride of potassium, and the carbonic acid there, may aid in its solution; since both the former, and also a fluid containing the latter acid, dissolve it in a slight degree. In bone and cartilage, the carbonate is doubtless united with the phosphate of lime, before being combined (in company with it) with the organic basis, to form the fundamental organized substance of these two tissues. This organic basis is the "*homogeneous substance of organic origin.*"

Finally, much of the carbonate of lime found by calcination of tissues, &c., whence it is derived, may be formed by this process itself; since all the salts of lime which have a combustible acid (*e. g.* the lactic) are thus converted into the carbonate of lime.

6. *Carbonate and Bi-carbonate of Soda.*

The first of these salts is found in the blood, fæces, saliva; in the urine, when alkaline, without being ammoniacal; and in osteosarcoma. Valentin also found about one-third of 1 per cent. of it in the compact tissue of healthy bone. It is always in the organism, dissolved

in water, and therefore liquid or solid as may be the case with the water itself. In blood it constitutes 0.1628 per 1000, and in fæces .08 per 100. To it is due the alkaline reaction of the blood, the saliva, and the cerebro-spinal fluid (p. 259). It is combined with and dissolves the albumen of the blood, and even prevents the fibrine from coagulating, if the blood drawn from a vein falls into a vessel containing a solution of this salt. It maintains the elasticity and the firmness of the blood globules, conditions without which hæmatosis cannot be secured (p. 261).

A very little of this salt is derived from water and food ; it is almost wholly formed in the body. The malates, citrates, tartrates, and lactates of soda and of potassa, contained in fruits taken as food, are all converted into the carbonate of these two salts respectively, and thus appear in the urine. The hydrogen lost by these acids, on being converted into the carbonic, is said to have been withdrawn by combination with the atmospheric oxygen, to form water, and produce animal heat, a proposition, however, on which theory our authors have already expressed their doubts. The salt leaves the body in the urine, and a portion is also decomposed in the lungs by the pneumic acid into the pneumate of soda.

The *bi-carbonate of soda* exists nowhere else than in the blood, and there its existence is very probable, rather than demonstrated. It is formed by the action of the carbonic acid in the blood upon the carbonate of soda. Its function is too nearly identical with that of the latter salt to need farther notice here.

7. *Carbonate and Bi-carbonate of Potassa.*

The latter of these two salts is found in the urine of the herbivora, but not in the human body at all.

The *carbonate of potassa* exists in the blood of the herbivora, and of man and the dog, when they consume vegetable food. It does not, however, amount in the former to more than one-third or one-half of the carbonate of soda. It is formed, like the latter salt, from the malate, citrate, tartrate, lactate, &c., of potassa. Its function appears to be very similar to that of carbonate of soda.

8. *Sulphate of Soda.*

This principle exists in very small quantity in the body, but in almost every part and fluid, except the milk, bile, and gastric fluid. It may be found in milk when administered medicinally. Poggiale found 0·44 in 1000 of human blood. It everywhere exists in a fluid

state, dissolved in water; and conduces to preserve the elasticity of the blood corpuscles, and to dissolve and keep in a liquid state the fibrine of the blood. It is derived probably from food and drink; and is evacuated in the urine.

This sulphate—and that of potassa—increases in the urine in inflammatory diseases; while both diminish in chlorosis and chronic maladies.

9. *Sulphate of Potassa and of Lime.*

The first of these is found wherever the sulphate of soda is, they being both dissolved in water and mixed. Simon found three parts in 1000 of urine. Its functions appear to be like those of the preceding salt.

The *sulphate of lime* is said to exist in the fæces, in blood, and in rachitic bones; but this is not yet certain. It is probably held in solution by the alkaline salts, already described. It is obtained from the water drunk. It is perhaps evacuated in small quantity in the urine; or is decomposed into some other salt of lime, and one of the sulphates just mentioned.

10. *Subphosphate, or Basic Phosphate of Lime.*

(Phosphate of Lime of the Bones.)

The ashes of every tissue and fluid in the body of man and the mammiferæ, contain this salt; while some of them have it for their principal constituent, so far as the mass is concerned. All calcareous deposits, as well as many urinary calculi, and phosphatic gravel, contain this salt. We have seen that in all cases this exists where the carbonate of lime does. It is the phosphate of lime which forms most of the calculi around foreign bodies introduced into the bladder, and those of the prepuce; and which is deposited on instruments left for a time in the bladder. It forms often by itself, or with the ammoniomagnesian phosphate, the urinary sand; and prostatic calculi are formed of it alone. Uterine and vaginal concretions consist of this, with a little animal matter around some nucleus introduced from without.

The quantity of phosphate of lime varies in different parts. In bones there is 48 to 50, and in enamel even 88½ per cent.; in dry muscular fibre, .93 to 1 per cent.; in coagulated albumen (from the blood) 1.8 per cent., and in fibrine (from venous blood) .69 per cent. In the ashes of urine are 2.57 per cent.; and of solid fæces 12.78 per

cent. But the more a part is submitted to mechanical influences, the more phosphate of lime is deposited. Thus there is more in the bones of the lower than the upper extremities (in the same weight); and less than in either in the more passive ribs. The *eburnation* of bone is an illustration of the same principle. But if this salt increases in the various bones, the others diminish in proportion, and *vice versa*—the proportion of the principles of mineral origin remaining constantly the same at all periods of life, and both in the compact and the cancellated tissue.

This salt is in a solid state in bone, teeth, nails, and hair. Though insoluble in water, it is in a liquid state in the blood and all the other animal fluids, whether in its free state, or combined with albuminous matters. When free, it is in solution by the aid of the free carbonic acid in the blood, of the bicarbonates, or by the chloride of sodium.

In bone it is combined with their peculiar organic substance (osséine), and doubtless with the other earthy salts. It is also combined with albumen and fibrine in the blood, as has been seen. In the urine it is held in solution by the acid phosphate of lime and of soda, and the other salts of these two bases; also by the carbonic acid in the urine.

This principle gives to several tissues their physical properties of resistance and solidity, upon which their uses principally depend. This is most apparent in the osseous tissue.

It is derived from milk, and other animal, and still more from vegetable, diet. The phosphate of lime of bones also exists in nature. It is evacuated in the urine. That in the fæces is the overplus in the aliment which had not left the alimentary canal by absorption. A part is, however, changed into the acid phosphate of lime, and then aids in the decomposition of the tissues.

The *acid phosphate*, or *biphosphate* of lime, exists in urine (and in gastric juice?), and is formed, probably, from the basic phosphate.

11. *The Phosphate of Magnesia*

Is found in all the tissues and fluids in the bodies of the mammiferæ; but in all cases in small quantity. It is more abundant in muscle, however, than the phosphate of lime.

It is found in a crystallized form, in the pus of abscesses of different organs, in the serosity of ovarian and other cysts, and in that of the pus of the pleura and peritoneum, and on the surface of carious and necrosed bones. Ovarian calculi are sometimes composed mainly of it, and a small quantity at least exists in all urinary calculi.

In human bone it constitutes 1.16 per cent.; in that of the herbivora, it is more abundant (2.05 per cent. in the ox). In the varying physiological and pathological conditions, it increases or diminishes with the phosphate of lime. Of enamel it constitutes 1.5 per cent.; of dentine, 1 per cent.; of muscle, .023 per cent. Cartilage contains a large amount—even 6.9 per cent.; and blood, .137 per cent. Human milk contains .05 per cent.

In bone, nails, and teeth, it is probably in a solid state, and combined (as is always the case) with the phosphate of lime. Though slightly soluble, it is doubtless directly dissolved in water. In bone, &c., these two salts, first united together, combine with the plasma to form the organic principle, or osteine.

It is obtained in the organism from vegetable food; carniverous animals deriving it from the bones of the herbivora. It is excreted principally in the urine; the fæces also containing any amount not absorbed from the food, as well as that contained in the intestinal and pancreatic fluids. The formation in the organism of ammonia causes a part of this salt to pass into the state of ammonio-magnesian phosphate, as in the fæces, in cases of typhus and dysentery. The functions of the phosphate of magnesia in aid of endosmosis, and of assimilation and *dis*-assimilation, may be associated with that of phosphate of lime.

12. *Ammonio-Magnesian Phosphate*

Is formed, as just explained, in the fæces in disease, and in the urine after standing twenty-four hours or less; and sometimes when first excreted, if the urine is alkaline. It may form in any alkaline fluid containing the phosphate of magnesia. It is found in vesical calculi, gravel, and sand, and still oftener in renal calculi; and in intestinal salivary, uterine, and biliary calculi. In all calculi it is habitually united to the phosphate of lime. It exists in the fluid form only in acid urine, being but slightly soluble in warm water, and in solutions of other salts. It escapes from the body in the fluid (or fæces) in which it is formed. A prolonged use of the phosphate of magnesia (or mineral water containing it) has produced a vesical calculus. This has occurred even in two weeks.

13. *Neutral and Acid Phosphates of Soda.*

The *neutral phosphate* is found in all the fluids and solids of the economy. Urine normally contains both it and the acid phosphate, the former constituting 2.41 parts in 1000 (Simon). In cartilage it

constitutes .92, and in woman's milk, .04 per 1000. It is always, in the body, in a state of solution in water; and this solution becomes a solvent of the insoluble phosphates and the nitrogenized substances. Thus it has properties analogous to the sulphate of soda. It may also replace the carbonate of soda in the blood, and does so in case of a substitution of animal for vegetable food.

It escapes in the urine and the fæces; but in the former is converted previously into the acid phosphate, or into the forms of phosphate of lime, of magnesia, or the ammonio-magnesian phosphate.

The *acid phosphate of soda* has hitherto been found only in the urine. We have seen how it may be formed from the neutral phosphate; the basic phosphate may also exist in the economy, and be converted by the union of carbonic acid into the neutral phosphate and carbonate of soda. The acidity of the urine is probably due to the acid phosphate of soda. There is no *free* acid in fresh urine, except the uric, and this in very small quantity. The constantly-changing reactions of this secretion are owing to the instability of the phosphate of soda.

14. *The Phosphate of Potassa*

Very much resembles, in all its relations, the salts just mentioned. Like the chloride of potassium, it is unfavorable to the exchange of oxygen and carbonic acid, since it destroys the consistence and elasticity of the blood corpuscles; and, like it, is also much more abundant in the muscles than in the blood. Precisely the reverse is true of the phosphate of soda. In the muscles of the calf, it is more than four (?) times as abundant as all the other phosphates taken together. It is derived from vegetable aliments mainly. It has not been found in the urine; but as, if meeting the chloride of sodium, the phosphate of soda and the chloride of potassium will be formed, it probably leaves the body in the form of these two salts.

Second Class of Immediate Principles.

Crystallizable Principles of Organic Origin.

In this class are 45 to 55 substances; 46 having been well determined as existing in the organism. We refer to the table. They are all *definite* compounds, all formed within organized bodies, and exist there only; are mostly rejected from the same, and become injurious if accumulated within it. But though so numerous, they constitute a much smaller part of the body than either the first or the third class, being generally in small quantities. The blood contains about $\frac{3}{5}$ of

them all; and the urine is next in order in this respect. The bile contains several which the blood does not.

They are all in the liquid state in the economy, except stearine and margarine, and perhaps the cholesterine of the brain. Some of them may, however, accidentally become solid, and form concretions; as uric acid, cystine, &c. They are liquid generally by direct solution in water. But stearine and magarine, when liquid, are dissolved in oleine.

Only nine simple elements are found in this class—Sodium, Potassium, Calcium, Magnesium, Sulphur, Carbon, Oxygen, Hydrogen, and Nitrogen. They are conditions of dis-assimilation, as the first class are of assimilation, and represent the amount of chemical elements of the principles of the third class, which had ceased to be a part of the living organism. Hence we shall not dwell on them so fully, as they act only chemically and physically in the body, as they do out of it.

Some of them are converted into other substances before leaving the body, as lactic, uric, hippuric, and pneumic acid. The last acid was discovered by Verdeil, in 1851. It exists at all ages of life in the organized substance of the parenchyma of the lung. It liberates carbonic acid in the blood by decomposing the carbonates in the latter. The pneumate of soda is also found in the lungs, and in the blood there also. But it subsequently disappears, not being found in any of the secretions. This pneumic acid has the same relation to the substance of the lungs that creatine has to muscle.

The first division of this class includes the acid or saline principles, twenty-three in number (see the table). With the exception of lactic and pneumic acids, and the inosate of potassa, these are found in a notable quantity only in the excrementitious fluids, or the urine, or in morbid products.

Of the second division—*nitrogenized*, or *animal principles, both neutral and alkaloid*—there are only five well-determined substances—Creatine, Creatinine, Urea, Allantoin, and Cystine. These are all purely excrementitious.

Creatine exists in striated muscular fibre alone, of all the tissues (.67 per cent.); also in the blood and the urine, and the liquor amnii. Thus it appears early in life, and persists till death. Lean meat contains more than fat meat; and the heart most of all. It is always in a liquid state, dissolved in water. It is evidently derived from the decomposition of the muscles, and is expelled in the urine as urea.

Creatinine exists in combination with creatine. It is less abundant than the latter in muscles, and more so in the urine. In all organic respects it resembles creatine.

Urea is found in the blood and the urine, in the vitreous and aqueous humor of the ox, in the saliva (?), and in the fluids of the ventricles of the brain, in a case of albumenuria. It constitutes about thirty-eight parts in 1000 of human urine. In diabetes it increases in proportion as the sugar diminishes. Its principal source, certainly, is the decomposition of muscular tissue. It unites with common salt and hydrochlorate of ammonia, and thus forms the *chlorosotate of urea.*

Allantoin has been found in the fluid of the allantois of the calf alone.

Cystine has been found only in the bladder and the kidneys, and only in cases of disease. Nothing is known of the conditions of its formation. It sometimes forms calculi.

The third division of the second class includes the *sugars, or the neutral non-nitrogenized principles.*

Of these there are but two kinds, in animals—*sugar of the liver*, or *diabetic sugar*, and *sugar of milk*. There are several kinds in vegetables, and grape sugar has the same chemical composition as the diabetic. Hence grape sugar, diabetic sugar, hepatic sugar, and glucose, are all synonymous terms, so far as composition is concerned, and are expressed by the formula, $C^{12}\ H^{14}\ O^{14}$. *Cane* sugar is $C^{12}\ H^{11}\ O^{11}$; and hence grape sugar is formed in the organism (though in small quantities) from cane sugar by the addition of three atoms of water ($H + O$.) to the latter.

1. *Glucose*, or *diabetic sugar*, exists normally in the parenchyma of the liver, in the hepatic veins, and the portion between them and the heart, of the inferior vena cava ; in the blood of the right heart and the pulmonary artery. During fasting, little or none is found in the pulmonary veins, the left heart, and the aorta and its branches ; but during digestion it may be found in all these parts in small amount, and sometimes in the general veins also. A very little may be found in the vena portæ during digestion ; but never at any other time, unless it be introduced in the food, though it will still be found in the hepatic veins. It never exists in bile in the normal state.

It is found from the fourth or fifth month of intra-uterine life, to the most advanced age. The urine of the fœtus in utero normally contains it.

In diabetes, glucose exists in the urine, the kidney, the saliva, the serosity of the pericardium, and that produced by a blister, in the semen (of a dog), in matters vomited, and in the perspiration. Others add the fæces also. But none is found in the brain or spinal cord, the pancreas, nor the spleen. There is much less sugar in reptiles than in birds and mammals, and none at all in the liver of the ray.

Glucose exists in a fluid state in the blood, dissolved directly in water. The contact of organic substances in that fluid rapidly (in twenty-four hours or less) converts it, by catalysis, into lactic acid. In the urine it normally combines with common salt, and thus loses the taste of sugar. In the liver of the higher animals, the sweetish taste is owing to its presence. In some diseases no sugar at all is formed in the body, for a short time before death. An excess of it is one of the signs of a deep general lesion.

Normally, the grape sugar is formed in the liver, from the principles of the organism itself. The parenchyma and the blood in the hepatic veins contain it, though none exist in the food (Bernard). But cane sugar also, entering the vena portæ by endosmosis from the intestines, becomes grape sugar in the hepatic veins, by fixing three equivalents of water. Perhaps the sugar of milk is converted in the same manner. Glucose itself also exists in some articles of food (in cooked starchy substances, grapes, &c.); and then, of course, appears first in the blood of the vena portæ, though most of such substances pass merely into the state of dextrine (C^{12} H^{10} O^{10}), and which probably becomes glucose in the liver by assuming four equivalents of water.

The glucose actually *formed* in the liver (not derived from food, &c.,) is formed in its *parenchyma*, and not in the blood;* since in animals bled to death, it still remains in its substance. Anything increasing the activity of circulation through the liver, increases the quantity of sugar, and *vice versa*. Hence, probably, the fact that the condition of the nervous system modifies the amount of sugar (Bernard); since this modifies the circulation. Irritation of the medulla oblongata at the origin of the pneumogastric nerve, was therefore found by Bernard to increase the quantity of sugar; and irritation of its extremities in the lung, by inhalations of ether or chlorine, pro-

* Dr. C. Hanfield Jones has recently maintained that the sugar is formed by the *cells* of the liver, while the bile is secreted by the *epithelial cells* of the hepatic ducts alone.—(E. R. P.)

duces the same effect, by a reflex action to the liver. Hence, in diseases of the lungs or medulla oblongata, diabetes might occur, we may infer.

The changes necessary to convert the cane sugar and the dextrine of the food into glucose in the liver have already been stated. Moreover, Bernard has shown that this change is effected by the pancreatic juice, in the duodenum. But all thus formed passes from the vena portæ into the hepatic vein, and is not formed as in the preceding circumstances, by and in the substance of the liver itself.

The glucose disappears from the blood by being converted, catalytically, into lactic acid, which decomposes the carbonates, and combines with their bases in the blood. But they are soon re-converted into carbonates; and in this form are evacuated in the urine. If there be an excess of sugar in the blood, it will pass off as such in the urine, and perhaps also appear in other secretions.

2. *Sugar of Milk.* (Lactine, Lactose.)

This is found only in milk, and of all the mammalia. It exists only from some point of time after puberty, continues only a few months at a time, and ceases a few months after the last pregnancy. In woman's milk, it forms 3.2 to 6.4 per cent., the colostrum containing even 7 per cent. It diminishes in quantity the farther the date from the previous delivery; being 5.5 per cent. a few days after delivery, it had fallen to 4.6 per cent. five months from this time. Its formula is $C^{24}\ H^{24}\ O^{24}$.

It becomes glucose (as does cane sugar) in the liver, and then is finally converted, as before explained, into lactid acid. If this change occurs in the milk itself, it becomes acid.

The parenchyma of the mammary gland *fabricates* the lactine, as that of the liver does the glucose—from what elements is not precisely known. The longer the milk remains in the breast, the less sugar, and other solid principles, and the more water it contains. The kidneys and the lungs are merely *eliminators*, and not *fabricators*.

Taken into the stomach of the infant, the lactine may be converted into glucose by mere addition of water, or by the action of the pancreatic fluid in the duodenum. Or if not thus, conversion occurs in the liver. Its subsequent disposal has already been explained.

Fourth Division of the Second Class.

Fatty Principles, Fatty Acids, and Soaps.

There are twenty to twenty-five bodies of this class. (See the table for fifteen of them.) Cholesterine, margarine, and perhaps

stearine, are sometimes found solid in morbid conditions; otherwise they are all in a fluid state. The fatty matters are found in connection with all the tissues except teeth and bone; and the latter enclose them in their cavities. Serum in all fluids (even in urine) contains some of them. They exist in the ovum, and through life; and in the adult constitute about 5 parts to 100 of the weight of the body. They exist in this proportion in the brain; 1½ to 4 per cent. in the muscles; and .16 per cent. in blood. The globules alone contain 3.31 per cent.; and the serum alone 1.72 per cent.; the fibrine (when dry) 2.6 per cent.

These principles are united molecule to molecule with *each other*, while all the preceding principles are combined with those of other classes. The exceptions to this assertion are the fatty elements of the brain, and certain fatty acids, soaps, and cholesterine and seroline of the blood. Thus they form little masses, seen under the microscope, and termed "fat globules." They exist in a state of suspension or emulsion, and become a morbid product if increased beyond certain limits. They are smallest in the chyle; and twice or thrice as large in the blood, *during digestion;* still larger in milk. They have no envelope. They exist normally in urine, semen, prostatic fluid, saliva, mucus (nasal), synovia, and bile, and the serosity of the pleura of the peritoneum, and that produced by a blister. Several tissues contain them; the *corpus luteum*, however, more than they all. They abound in cancerous, atheromatous, and other morbid growths.

These are alimentary substances, when taken into the stomach; and being acted upon by the pancreatic fluid (Bernard), are then absorbed, and may be in part accumulated in the cells of the adipose tissue. Most of the fatty matter is destroyed in the organism, finally taking the form of carbonic acid and water, and maintaining, in part, the organic heat. A part of these substances must enter the body ready formed; but a part also is formed in the organism, perhaps partially from the hepatic sugar; or, as Leibig believes, from the metamorphosis of certain nitrogenized substances. Both amylaceous and nitrogenized elements in the food certainly afford the materials for the formation of the fatty principles; but how this is accomplished is not precisely known. But the *liver forms them*, without doubt (p. 38, vol. 3). Probably, however, they are *also* formed in the tissues where they are found, (*e. g.*, in adipose tissue,) and not wafted to the latter locations in the blood from the liver alone.

Cholesterine is found in the blood, bile, liver, brain, nerves, the fæces, and the crystalline lens, and in many pathological productions.

Its function in the economy is unknown, as is also the manner of its formation.

Seroline is found in the blood only. At what period it first appears there is unknown, as is also its office.

Margarine forms a greater portion of human fat than the *oleine*. Stearine exists in it, but in very small quantity. It does not exist in butter, while the two other principles do. It may be formed, however, in the body from the two others, since in a dog taking butter alone for sixty-eight days, the liver contained a large quantity of stearine, and little or no oleine (Magendie). An animal is not nourished by these three principles alone, (lard, butter, &c.,) but is, for a time, by adipose tissue.

Cètine is another name for spermaceti, and is found in closed cavities between the two plates of the cranium of two or three species of whales.

These are the only principles of this division which we notice particularly.

Third Class of Immediate Principles.

Organic Substances, or Coagulable Principles.

Eighteen substances (see the table) are included in this class—fibrine, albumen, caseine, globuline, musculine, ostèine, cartilagèine, elasticine, and keratine, being the most important.

All of this class have *not a definite* and determinate *chemical composition*. They constitute essentially the mass of the organism, and do not go out of it normally; their *materials* only enter and go out constantly, those entering being the principles of the first class already described, and those leaving, the second.

Ostèine and elasticine are not found early in embryonic life; and caseine being an element of milk, is found only in the female, and after puberty. Neither of the preceding principles can be transformed into another, probably; hence no tissue is transformed into another, as cartilage into bone, &c., but the former is *replaced* by the latter (Chevreul).

It has been remarked that these substances constitute a great part of the mass of the body; the weight, however, of other principles may be greater than of these, *e. g.*, that of the phosphate of lime in bones compared with their peculiar organic substance, osteine.

We have hitherto regarded these substances as of definite chemical composition. Our authors insist on the fact that they have *not* a

fixed and definite composition, and even make this one of their peculiar traits. Their composition is constantly varying, though within certain rather narrow limits, the variation rarely exceeding one per cent. in respect to either of the chemical elements entering into their composition. It follows, of course, that the combination of these principles with other substances (as acids, alkalies, &c.,) cannot be *definite* and uniform compounds, *e. g.*, sulphate of copper and albumen being mixed, the salt is decomposed, and its two elements combine with the albumen; yet the result is neither sulphate of albumen nor albuminate of copper, in definite proportions.* All these substances are of neutral reaction, and all coagulable.

If, therefore, albumen, fibrine, &c., are constantly varying in their own precise composition, much less is it true that these two substances are always of the same composition. And yet two analyses of one of them (*e. g.*, of fibrine) may not be more nearly identical in the results, than an analysis of the former as compared with one of the latter.

Most of the earthy salts—phosphates, carbonates, oxalates, silex, and the silicates—unite with these substances. Hence, whenever concretions are formed by the former, a certain quantity of the organic substances is fixed and retained in them. This union is, however, more feeble than that with the metallic salts, and hence is constantly overcome, and renewed in the acts of assimilation and dis-assimilation. It is from the more intense union of the latter salts with organic matters, that decomposition after death is prevented by some of them, since thus these matters are hardened and contracted. Thus also these salts become the *poisons* called metallic, as those of arsenic, mercury, &c.

Albumen, caseine, and fibrine, are in a *fluid* state in the organism; musculine, &c., are *demi-solid*; and the rest (ostèine, &c.) are *solid*. All these may be reduced to a more solid state by evaporation of the water which forms a part of their chemical constitution, and which may be again re-combined, if they are plunged into the fluid. Meantime, however, the tissues containing these substances cease to perform their functions, and if too long dried, or too completely so, the re-addition of water does not restore the lost power. Thus these are not solid substances in a state of solution, but the water is a part of their chemical constitution. Coagulation is, also, merely the passage of a

* Hence the difficulty of distinguishing these substances from each other, by the reactions of mercury, tin, copper, &c.

liquid or semi-liquid substance into a solid state, and not the return of a substance in solution to its primitive solid state ; and the organic substances alone coagulate. When coagulated, they still retain their *water of constitution*, united molecule to molecule now, in the organic matter, as before.

All these substances are *assimilable, i. e.*, they do not appear in the urine if admitted into the blood from the alimentary canal, or otherwise, in proper quantity, but disappear entirely from it, and become associated with the pre-existing elements of the same kind in the tissues. The organic substance of bone (ostèine), so long as it is associated with the phosphate of lime, will sustain an animal (Magendie). The fluid obtained by prolonged boiling of bone is, however, not capable of sustaining animal life for a long time ; for thus the ostèine is converted into *gelatine*, which is not assimilated, but appears in the urine. But none of these organic substances, taken alone, can long sustain life ; the principles of the first and second classes must be added, as mere accessories, but, at the same time, indispensable. In muscle, for instance, the musculine is united, though feebly, with creatine and creatinine, besides the water and the salts. Nor can any principle alone (not even the organic substances) form a substance manifesting a single vital property, as nutritive or reproductive. If the fibrine of the blood sometimes appears to do so, it is because the blood contains the principles of all three classes ; for fibrine alone, though it may form a false membrane (so called), can never become vascular. It has been already shown that the fatty matters are generally combined together, and mechanically disposed in relation to the other tissues, being arranged in their interstices in the form of globules. In the organic matter (keratine) of epithelium, nails, horn, and hair, fatty matter exists in chemical combination, and not in the form of globules. These all fall off, however, not being in any degree taken back into the organization after dis-assimilation. This union is, however, a very feeble one. Thus we must distinguish between the organic principles on the one hand, and the anatomical, or rather histological, elements of organism on the other. The latter present the form of membrane, fibres, cells, &c. ; the former have no proper form, and the latter are never constituted of a single substance alone. The simple cell or membrane contains principles of all the three kinds, water always existing in greater or less abundance, besides salts and other compounds. Chemistry alone, then, does not give a just idea of the organic substances ; their examination is a part of anatomy. " It is not carbon, hydrogen, oxygen, and nitrogen,

which directly form the organized substance, but bodies composed of these, which act directly, and which naturally arrange themselves in three distinct classes" (p. 167, vol. 3).

The materials for the formation of the organic principles arrive in the body already formed from the food, etc.; the organic substance is formed in the organism itself. Those existing in the blood may require little more than an isomeric change of those in the food.

The stages through which these substances pass in leaving the body, after dis-assimilation, are—uric acid, urea, allantoin, carbonic acid, and water. Creatine may pass into creatinine, and appear in the urine; and albumen and gelatine into laccine.

First Division of the Third Class.

Organic Substances naturally Fluid.

These are fibrine, albumen, albuminose, caseine, pancreatine, and mucosine. These are (with the next division) called *albuminous substances.* Albumen, caseine, and fibrine, have, for several years past, been called the *protein compounds*; but since protein can be obtained only by a decomposition of them, our authors reject this term. *Gelatinous compounds*, also, are not found to exist, for the same reason, it being only by the decomposition of white fibrous tissue and bone, and of cartilage, that these (viz., gluten and chondrine,) are obtained.

We shall not dwell upon fibrine, caseine, and albumen, since their properties and relations are better understood; but we will inquire with our authors, in allusion to the theory that all the tissues in the body come originally from albumen, this being the *starting point*, or original pabulum—"why should fibrine or albumen be the radical rather than the organic part of the osseous tissue, of muscle, or of the epidermis?" (p. 182, vol. 3.)

Pancreatine exists only in the pancreatic fluid.

Of *mucosine* five kinds are mentioned:—1, From the mucous membrane of the nares and bronchial tubes, large intestine, and the interior of the uterus; 2, from the neck of the uterus; 3, in the urine; and 4 and 5, from the parotid and the submaxillary glands.

Albuminose has, till recently, been confounded with albumen and caseine; is liquid, not coagulable by heat, and incompletely so by acids. Is found in blood, and the chyme resulting from the digestion of nitrogenized matters. It forms four to six parts in 1000 of blood. It is formed in the small intestines, by isomeric catalyses probably. Penetrating into the blood, it becomes albumen, and

may unite at once with the solids or fluids requiring it as an organic principle.

Second Division of Third Class.

Solid or Demi-Solid Principles.

These are the most abundant of all the organic substances, viz.: Globuline, crystalline, musculine, osteine, cartilagèine, elasticine, and keratine.

Globuline is found only in the blood corpuscles, and constitutes the principal part of their mass—100 to 125 in 1000 parts.

Crystalline is found only in the crystalline lens, and constitutes 35.9 per cent. of it (Berzelius).

Musculine exists only in muscular tissue. It is more abundant in that of the ox and the hen, than in that of the sheep, there being no more than 50 per cent. in the muscle of the calf.

Osteine (or osseine) is found in bone, and also in white fibrous tissue. It is decomposed into gelatine by the action of boiling water. The phosphate of lime in bone is chemically combined with it. It is nutritious, while gelatine is not. Magendie found that animals may be sustained indefinitely by giving them finely ground bones, while they soon languish on soup obtained from bones by boiling them.

Cartilagèine is found in cartilages and fibro-cartilages. It is decomposed into chondrine by the action of boiling water.

Thus neither gelatine nor chondrine are immediate principles.

Elasticine is found in the yellow fibrous, or elastic tissue; the precise proportions are not yet decided.

Keratine is the organic substance found in epidermis, nails, hair, horn, &c.

Third Division of the Third Class.

Coloring or Colored Organic Substances.

Under this head are included: *Hæmatine* (or Hæmatosine), the coloring matter in the blood corpuscles; *Biliverdine*, in the Bile; *Melanine*, in melanotic deposit; and *Urrosacine*, in urine.

Having disposed of the well-established immediate principles of the body of man and the mammiferæ, our authors next consider two *accidental* immediate principles—*nitro-hippuric acid*, and *cane sugar*, and then pass on to the fourth and last book, which treats of principles doubtful, or not well determined; and bodies not to be regarded as immediate principles at all. We can only give a mere list of these substances, as found in man, as it is only necessary for the anatomist

and physiologist to know them, as not being of any special interest; though some have hitherto been differently regarded.

Division 1st—Immediate principles of probable or certain existence, but not well determined.

1. Of the 1*st Class*—Silex.

2. Of the second class—Acetate of soda, leucine, xanthine, hypoxanthine, lienine, two acids peculiar to human urine, hæmatoidine, butryne, buytroléine, phosphorized fatty matters of the brain, cerebric acid, and cerebrate of soda.

3. Of the third class, the following are probable: Neurine, synovine, or arthro-hydrine, lachrymine, spermatine, organic substance peculiar to dropsical effusions, paralbumine, pyine.

Division 2d—Substances doubtful as immediate principles, though known to exist.

1. Of the first class; ammonio-sodaic phosphate; phosphate of ammonia; ditto of iron; chloride of calcium, of magnesium, and of iron; arseniate of lime.

2. Of the second class; tartrates of iron; benzoic acid, and benzoates of soda, potassa, lime, ammonia, glycocol; hippurate and lactate of ammonia; succinate of soda; urostealite, xanthocystine, urate of iron, sulphocyanuret of potassium, and of sodium; formic acid, a peculiar crystallized principle in semen, and butyric acid; and several others peculiar to several lower animals; uroglaucine; guanine; inosite.

3. Of the third class; phymatine; hydatidine; animal substance of calculi; fibralbumine; cyanurine; melanurine; coloring matter of blue suppurations.

Division 3d—Certain simple bodies whose actual state of combination is *unknown, or not generally indicated.*

This division includes iron, copper, lead, manganese, arsenic, sulphur, and the carbon of the lungs. These are also termed *medical principles.*

Division 4th—Certain natural and artificial chemical compounds which are *not immediate principles.* Only a few of these will be mentioned, and such as are often regarded as immediate principles.

Soda, potassa, lime, alumina, baryta, the three mineral acids, hydro-ferro-cyanate of iron, taurine, bilifulvine, and five acids, said to be found in the bile, dyslysine, purpuric and erythic acids, erythrogene, ethal, glycerine, glycile, and lipyle and their oxides.

Proteine and its two oxydes—epidermose—pegmine—gelatine—

chondrine—diastase (animal or salivary)—pepsine, gasterase, and chymosine—animal cellulose—xantho-proteic acid.

All the preceding are produced by chemical *decomposition* of the immediate principles.

Division 5th—Substances named immediate principles, but which either do not exist at all, or do so as mixtures or products of chemical changes.

These are—

Adipocire,	Gastric Acid,
Cholechorine,	Oonin,
Choleine,	Hæmægonine,
Cruorine,	Hematic Acid,
Kiestine,	Empyreumatic Acid,
Lactate of Urea,	Picromel,
Oxide of omichmyle,	Xanthose,
Blue, brown, and yellow pigment of the blood.,	Uroxanthine,
Biliary resin,	Albuminate of Soda,
Koprikine,	Hydrochlorate of Uryle,
Osmazome,	Albiperle,
Zomidine,	Hæmaphacine,
Bubuline,	Subrubrine,
	Ouretic Acid.

If it be thought by the readers of the MONTHLY that we have extended our notice of the preceding work beyond the required limits, we excuse ourselves by the remark that, in our judgment, the publication of this work forms an era in the application of chemistry to physiology, pathology, and histology. It is the first work on *anatomical* and *physiological* chemistry, as distinguished from *organic chemistry*, and will therefore take the lead in establishing a new and improved school of chemistry in its aspects and relations most important to medical men.

E. R. P.

PART III.—PROCEEDINGS OF SOCIETIES.

NEW YORK PATHOLOGICAL SOCIETY.

Jan. 10. *Dr. Clark* presented a specimen of parasitic vegetable growth removed from the ear of a lady, æt. 60, by Dr. Kissam. The ear had been syringed, after emollient applications, for the removal of a suspected accumulation of inspissated cerumen causing deafness. The edge of a white membrane presenting, Dr. Kissam was able to withdraw by the forceps what seemed to be a white membranous lining of the whole lower external ear. It was moulded to its walls,

having on its surface an impression of the bones of the tympanum. On its removal the hearing of that side was very much improved. The other ear was to receive the same treatment. (See minutes of meeting Jan. 24th.) On microscopic examination, the mass of the membranous accretion was found to consist of a vegetable product, belonging to the same general class as the *oidium albicans* described by Dr. Clark at the meeting of this Society, Jan. 25th, 1854, yet unlike it in being unicellular, or at least composed of cells of unusual length. The stem was somewhat branched, and the spores appeared to be more or less vested in the epithelial cells. Dr. Clark thought that the plant probably grew from the epithelial lining of the external ear. He believed that a vegetable growth in the ear had not before been recognized as a cause of deafness.

Dr. Clark also presented a mass of fibrous tumor, weighing several pounds, springing from the fundus and body of a uterus. The woman from whom the specimen was taken died suddenly, and the partial history of the case obtained was of no value.

Dr. Dalton showed a malformation of the heart from a male infant, in which the organ had but two cavities, one auricle and one ventricle. The case occurred in the practice of Dr. H. W. Brown. The infant was the fifth child of its mother, but the first by a new husband, the mother having married a second time. All the other children were perfect, with the exception of the first, which was born before its time, and lived but a few hours. The infant from which this specimen was taken was born at full time, and had no other malformation. It appeared quite well for eighteen hours after birth, except for some coolness of the skin. It then began to show signs of distress, which were attributed to flatus. It grew constantly cooler at the surface, and more dark colored about the face, and died without any other remarkable symptom about twenty-four hours after birth. The heart was of natural size, and nearly of natural shape externally, but on being opened it was found to consist only of the right auricle and ventricle, the left cavities being entirely wanting. The blood passed out of the right ventricle, through the pulmonary artery, which sent two small branches to the lungs, and then continued onward by the ductus arteriosus as a large trunk to the arch of the aorta. Part of the blood then passed down through the thoracic aorta, and part returned in a backward direction through the aortic arch, which, after supplying the head and upper extremities, returned to the heart and terminated in the coronary arteries.

[This malformation is of great value in connection with Professor Peaslee's explanation of the course of the fœtal circulation, as stated in his paper published in the Number of the MONTHLY for May, 1854, (vol. 1, p. 321). If we mistake not, this heart will be found to corroborate the positions there taken. These, though distinctly stated and logically maintained, do not seem to have attracted that attention to which such a topic is entitled, and which must show a great error in the explanation of these phenomena, as taught from most anatomical and obstetrical chairs. If it had come from the other side of the Atlantic, it would have been at once received to the rank to which it is entitled.—ED.]

Dr. Dalton also exhibited a horny epidermic growth from the forehead of a man about twenty-five years of age, which had been removed by Dr. Detmold. The horny protuberance is a quarter of an inch long, of a brownish color, and fissured longitudinally. Its base was seated in an enlarged cutaneous follicle.

Dr. Sayre exhibited a portion of the walls of the abdomen of a patient, into whose peritoneal cavity he had introduced a lead seton, for the purpose of producing adhesion of the walls of the cavity in a case of ascites dependent on organic disease of the heart, also a portion of the intestines, which were agglutinated by recent lymph. The most serious symptoms caused by the accumulation were relieved by the operation, but the patient died with diarrhœa. The autopsy showed that general peritonitis with adhesion had been excited by the seton, but that there had not been a sufficiently free exit to accumulating fluids. Dr. Sayre thought that it would have been better to have left in a canula, as in Dr. Hart's recent operation. Dr. Sayre had operated once before in similar circumstances. The man was greatly oppressed by the accumulation of serum from organic disease of the heart. Having drawn off twelve quarts of fluid, he introduced a lead seton, and made incisions over the malleoli. In twelve days, sixteen quarts of serum escaped by these incisions. Peritonitis having been excited in a mild degree by the seton, no reäccumulation in the abdomen took place. The patient got about and is now living in moderate health. A history of the first case was furnished for the archives of the Society.

Dr. Clark inquired as to the result of puncture of the abdomen, for the removal of serous fluid when the wound has not been closed. His experience had been that the operation led to unpleasant results, in a large proportion of cases. Dr. Clark thought that the function

of the bowels was apt to be impaired when general agglutination took place, and that this was an objection to the introduction of a foreign body like the seton, which would excite adhesive inflammation.

Dr. Sayre considered the result of the operation as the less of two evils. In answer to Dr. Batchelder, he stated that the bowels of the first patient mentioned were regular for ten days after the operation, and until diuretics were administered, when diarrhœa set in.

Dr. Conant suggested that the cul de sac of the vagina, where the peritoneum is reflected from the rectum was a suitable point for puncture of the abdomen in cases of accumulation of fluid.

Dr. Sayre thought the wound would generally heal. He inquired the result of operations for dropsy by injection of the abdomen.

Dr. Cochran alluded to a case reported by Dr. Otto Rotton, of a case of ascites of twenty years' standing cured by the injection of Tr. Iodine.

Dr. Emmet exhibited a heart with the following history: A female, a native of Ireland, æt. 30 years, was admitted to the Emigrants' Hospital, Ward's Island, November 30, 1854. On admission, the face, body, and lower extremities were very œdematous with effusion into the peritoneal sac. The left side of the chest was dull on percussion; at the spine of the scapula the respiratory murmurs could be heard, although very feeble; the resonance on the right side nearly normal. The lung was somewhat œdematous; there existed an extensive effusion in the pericardium; the right ventricel was hypertrophied, and dilated, with tricuspid regurgitation; the heart's impulse very feeble, with a double murmur over the apex. Pulse 120 per minute, small and feeble. She died December 28th, 1854. Post-mortem examination made forty-eight hours after death. Effusion very great in the left pleural cavity, with the lung compressed nearly one-half its normal size, and firmly bound down on its posterior surface with a dense band of fibrine about an inch wide, extending from apex to base. The pericardium contained about a pint of fluid; the right ventricle was dilated. The mitral valves were glued to the side of the ventricle so as to form a complete tube; the other organs healthy.

Dr. Isaacs described an instance of *enchondroma* in a negro, connected with the knee-joint. A tumor was noticed in the popliteal space half the size of a hen's egg; the popliteal artery and nerve were found stretched over it. It was enchondromatous in its structure, and was attached to the posterior ligament of the tibia. There were

several smaller masses disengaged, from the size of a shot to that of a pea, and another, very firm, connected not only with the cartilage of the tibia, but even the substance of the bone itself.

Dr. Sayre thought these growths to be, probably, the result of inflammation of the joint, as in two instances when he had opened joints where ulcerative disease existed, the loss of substance was repaired by material similar to this, so far as could be determined by the eye and probe.

Dr. Finnell exhibited three atrophied infants, and stated that similar cases came under the notice of the coroners very often. They are found only in the poorer districts of a city ; are fed on tea, coffee, and bad milk ; are teased with vermifuge medicines, and generally die in convulsions. On examination, *post-mortem*, the head is found enlarged, weighing generally as much as the body, with considerable serous effusion in the ventricles. If the children are under six months' old, there is no sign of disease, except atrophy ; no fat is found, except in the orbits and under the malar bones. At one year of age, there is enlargement of the cervical glands ; and after one year, generally tubercles. Dr. Finnell said he considered the effusion into the ventricles as anæmic, and not inflammatory effusion. The parents were generally healthy. Dr. Finnell exhibited a specimen of internal strangulation of the small intestine. The patient, a man, æt. 27 years. He was well until forty hours before death, when he was attacked by cramps and pain in the bowels ; he took brandy and peppermint, and went to bed. The same night he took castor oil, but with no relief. Other cathartics were administered, but were vomited. Five hours before death, he spoke of feeling better. At the autopsy, about two feet of the ilium was found to be passed under the sigmoid flexure of the colon, when the peritoneum was deficient at the upper part of the rectum, and then twisted on itself.

Dr. Batchelder thought the stethoscope would assist in the diagnosis of internal strangulation of the bowels. He is able to trace peristaltic motion through the whole course of the bowels ; can hear the contents of the bowel drop through the ileo-cœcal valve, and can detect obstruction of the bowel.

Jan. 24, 1855. *Dr. Clark*, in connection with the cases of atrophy and deaths from inanition, presented by Dr. Finnell at the last meeting, read statistics showing the great increase of mortality in children under five years, the deaths being at the present time nearly twice as great as fifty years since, in proportion to the population of

the city. He thought the matter demanded careful inquiry, and should be submitted to the City Authorities.

Dr. Holcomb moved that Dr. Clark be requested to draw up a statement in accordance with these facts, and that the same be presented to the Corporate Authorities.

Dr. Clark presented the adventitious growth, removed by Dr. Kissam, from the ear in the case narrated by him at the previous meeting. The same appearance existed as in the other, with the exception of the under surface being covered with cerumen ; the sense of hearing was entirely restored. Dr. Clark also presented the heart, lungs, aorta, and trachea of a man, who was an inmate of Bellevue Hospital, laboring under aortic aneurism. The disease was recognized ; the aorta could be distinctly felt pulsating ; there was no *bruit*. His health was tolerably good, being at times subject to attacks of dyspnœa. In eight months the tumor was not much increased ; the attacks of dyspnœa became more frequent and prolonged ; and during one of these paroxysms he suddenly died. Ten days previous to his death, he raised blood copiously. *Post-mortem* examination revealed aneurism of the aorta ; the clot was of considerable size, tumor adhering to the sternum. On the posterior face of the aneurism was the trachea, in which were two ulcerations communicating directly with the aneurismal tumor. Several smaller ones were on the trachea, which apparently began on the mucous membrane. The lungs showed well-marked appearances of pulmonary apoplexy ; scattered over their surface were masses of various sizes, of a dark, red color, occupying two-thirds of the lung tissue. Dr. Clark also exhibited a kidney, which, to the eye, seemed perfectly healthy, but on microscopical examination showed its substance filled with fatty globules, small, but numerous. He cited this as an illustration of the fact that the unassisted eye is not always sufficient to detect disease of this organ. Dr. C. exhibited for Dr. Matthews the brain of a man who became suddenly insensible in the street a month since. On recovering from this condition, it was found he was paralyzed on the left side. He continued in this state, scarcely ever speaking, doing whatever he was told, being nearly half-stupefied. Two days previous to death, he became comatose.

Post-mortem examination showed the existence of a moderate-sized clot in the right lateral ventricle, over the optic thalamus. The clot had lost its dark color The small additional effusion, which probably occurred two days previous to death, was doubtless the immediate cause of death.

Dr. C. also exhibited for Mr. Trenor the brain of a man, inmate of one of our charities, who was not regarded very sick; he was employed in working about the institution. On Thursday last, he was disinclined to work, and there was observed unusual brightness of the eye. On Saturday, the same state continued; at night he was very wakeful, and towards morning reported as dying. He could give no account of himself; no pulse could be felt. Croton oil was administered, which produced several operations. He gradually became comatose, and died on Sunday. *Post-mortem* examination gave evidence only of intense redness, blood being effused under the arachnoid membrane.

Dr. Holcomb mentioned two or three cases seen in Dr. Wild's practice, similar to the foreign growths removed by Dr. Kissam from the ear of a lady.

Dr. Peaslee remarked it was a matter of much practical importance and interest, whether a vegetable growth alone, and independent of a diseased state of the cuticle, could cause deafness; for if so, the sulphurous acid gas, well known to be destructive of all the fungi, would cure it.

Dr. Conant presented a heart and arch of the aorta, taken from a female, whose history he ascertained to be as follows: Two years since, she had pleurisy on both sides, from which she never fully recovered. Seven months since, she was delivered of a living child, and a month after the event, was attacked with pain in the cardiac region, accompanied with severe palpitation; these attacks recurred daily until her death. In a debauched state she was received at the Penitentiary Hospital, and placed in the ward of delirium tremens, where she remained four days, and was then transferred to the pulmonary ward. Being exceedingly nervous, and complaining with symptoms that pointed to the uterus as the seat of the difficulty, an examination was made, and metritis with vaginitis was found to exist, with profuse muco-purulent discharge. This condition of the parts was thought to account satisfactorily for the nervous symptoms; still the cardiac difficulty increased in severity, and an examination was instituted by a careful diagnostician, who discovered a peculiar rough sound produced by the blood driven through the aortic valves, together with hypertrophy of the heart. *Post-mortem* examination showed the heart slightly hypertrophied, but the valves quite normal. Atheromatous depo-it was found in the inner coat of the aorta, to some extent over the whole arch. Dr. C. asked if this might not account for the rough sound heard during life.

Dr. Clark thought that there was hardly deposit enough to pro-

duce any marked abnormal sound, save perhaps a *bruit* from slight dilatation of one of the valves.

Dr. Peaslee presented two uteri with the related parts, showing the effects of pelvic abscess.

The first was from an Irish woman, unmarried, æt. 24, of very fair complexion, who fourteen weeks before death was under treatment in the country, by a physician, who told her that she had disease of the uterus. Six weeks before death she was attacked with dysentery, as was believed, and two weeks after this, was admitted into the Cholera Hospital, under supervision of Dr. D. J. Conant, to be treated for cholera. The symptoms of that disease were soon relieved; but she died in four weeks with continued symptoms of dysentery. On *post-mortem* examination, the colon was found intensely inflamed throughout. The present specimen shows the uterus anteflexed and inclined to the left, and the rectum at its upper part depressed and inclined to the right. The cavity of an abscess exists under the right fallopian tube and ovary, extending behind the displaced uterus (the abscess being doubtless the cause of displacement), and opening into the rectum at its upper extremity, this being drawn down and displaced to the right, as already described. The right ovary is atrophied to less than half its usual size, but not structurally implicated in the abscess.

The second specimen was obtained from a subject on the dissecting table; nothing being known of the case except that the woman died in a jaundiced state, and had a fatty liver, as well as the pelvic abscess about to be described.

A large abscess is found to have almost destroyed the substance of the left ovary, and this had discharged by several small openings, apparently, into the *cul de sac* between the uterus and rectum. Inflammation of the peritoneum then ensued; the effect of which was to glue the small intestines in a mass across the pelvis, and thus roof over the *cul de sac*, and prevent the matter escaping among the convolutions of the alimentary canal. Finally, the matter, though confined, had been discharged through an opening four lines in diameter, into the vagina, at the bottom of the *cul de sac*, and through two smaller openings into the rectum, also three and a half inches above the anus. A layer of exuded plasma still covered all the surfaces, forming the boundaries of the cavity in which the matter had passed from its original place of formation.

Dr. Peaslee remarked that these specimens had presented to him several points of interest. He had seen five cases of pelvic abscess

in the past nine months, with whose history he was familiar. The patients were all females, four of them being unmarried, and the other (æt 36) not having borne a child for the last seven years. In all, the disease dated from some unusual exposure at the time of the catamenial flow. In every case symptoms occurred which might naturally have been attributed to dysentery alone, had the true nature of the disease not been ascertained; and in every case matter had been evacuated by the rectum. In one case it was said to have been passed from the vagina also; but from the very frequent mistake of mere vaginal, mucous, or a common leucorrhœal discharge (purulent or otherwise), for matter discharged from an abscess, we may doubt if this was the fact. The second specimen just shown demonstrates the possibility of a discharge through both the rectum and vagina at the same time. The discharge in the five cases occurred in from three to five weeks after the first inflammatory symptoms were developed. We may learn practically from these specimens the propriety of seasonably opening a pelvic abscess either from the vagina or the rectum, according to circumstances, so far as its mere evacuation is concerned. And in this point of view merely, it should be opened from the one of these two canals, in which fluctuation is most distinct, or in which the parts to be divided are the thinnest.

There is another point of view, however, in regard to which the point selected for opening is of very great importance. He alluded to the ultimate effects of spontaneous opening into the rectum in producing stricture of that canal. In three of the five cases alluded to, a stricture occurred in consequence of the opening into the rectum. In one of them Dr. P. was at first led to suspect schirrus; but the treatment adopted has removed all suspicion of any malignant disease. In another case, now under treatment, he would have made the same mistake were it not for his previous experience. In this last case the stricture would not allow a No. 7 catheter to pass through it. Dr. P. divided it freely with a bistoury, and now (at end of two weeks) it admits a bougie one inch in diameter. In these three cases the stricture commenced within four inches from the anus. With a view to avoid the ultimate effect of a pelvic abscess discharging into the rectum, Dr. P. thought it better, if fluctuation could be felt from the vagina, to withdraw the matter through that canal. A stricture would be less likely to form, doubtless, if an abscess were seasonably opened than if left to open spontaneously; but if a stricture is to occur, it would, under most circumstances, be desirable in the vagina rather than in the other canal. While suggesting this

operation, instead of the opening from the rectum, Dr. P. would also say, in regard to the suggestion made by Dr. Conant at the last meeting (as Dr. P. was not then present), to open from the vagina in some cases of ascites, instead of the usual operation through the linea alba, that a patient of which he had the care, in part, had been tapped five times in this way; and that the puncture through the *cul de sac*, between the uterus and rectum, had always healed at once, without the least difficulty—the patient having been kept in bed four or five days after the operation. At one of these tappings 106 lbs. of fluid had been withdrawn, and 103 at another.

Dr. Finnell presented the stomach of a man, æt 24, of robust constitution, who had been drinking excessively for the last ten days. At 1 p. m. to-day he was found dead in bed. The stomach was found intensely injected with abundant, thick, tenacious mucus, and much contracted.

Dr. Clark remarked that, from his observation, it was "raw rum" only which caused intense, red congestion, similar to the specimen before the Society. He doubted if it was inflammation, and thought the appearance would have subsided had he lived twenty-four hours longer. Evidences of gastritis rarely existed after hard drinking.

Dr. Cox mentioned a patient under his treatment who had indulged freely in drinking. He vomited blood; no tenderness of stomach existed. He thought that it was not inflammation, but simply congestion.

Dr. Peaslee considered vomiting of blood as the best thing that could happen, as a means of relieving the inflammation.

Dr. Clark observed that the "rum stomach," so called, was only induced by the continual irritation of frequent stimulants, and that the cause of congestion must be repeated to cause this appearance.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

The Medical Society of the State of New York held its Forty-Ninth Annual Session in Albany, commencing Tuesday morning, February 6th.

There was a larger number of delegates present than had ever before attended the meeting of this Society. The city of New York sent few representatives, while the county societies by the number of

their delegates, showed an increased interest in the proceedings of the State Society.

Dr. Charles B. Coventry, of Utica, the President, read his inaugral address, in which he gave a brief history of the rise and progress of the Society, and congratulated those interested in the gradual increase in the numbers attending its session, the interest felt, and the influence held and exerted by the Society over the members of the faculty throughout the State, and in the Legislature, upon all subjects relating to the profession.

Previous to 1806, when the State Society was organized by act of the Legislature, all persons who practised medicine were required to obtain a license from a Judge of the Supreme Court. This, then, was the first action of the government, authorising the members of the profession themselves to admit students to the practice of medicine, and, as the charter was worded, "to regulate the practice of physic and surgery in the State."

The President was glad to observe that the county societies were regaining their former position and activity, which had been effected by the act of the Legislature abolishing all penalty for practising without a license. He thought there was a general misunderstanding as to the tenor of this act—that it did not materially affect the profession, nor diminish in the least any of the rights and privileges of the county societies, but referred more particularly to those out of the profession. On account of this misapprehension, the county societies had been neglected, and many voluntary associations had arisen. While he approved of the latter, as keeping up a proper professional feeling, and fostering a friendly intercourse among its members highly beneficial to themselves, and of great interest to their patients, he thought they should not supersede the county societies, which were their legal representatives, while the former had no authorized legal powers.

Reference was made to the epidemic cholera of the year—to its wide extent, frequenting equally town and country—its amenability to treatment when early visited—and the absence of panic in the community, which was greatly owing to the assurances from the profession that no disease was more tractable if treated in its early stages, and to their gradually becoming familiar to its appearance.

A highly complimentary notice was made of the recent excellent report of the Sanatory Commission of New Orleans; and with a lengthy extract from this report, upon the origin and communicability of yellow fever, the President closed his inaugural address.

Dr. Armsby, of Albany, exhibited the specimen of extra uterine conception presented to the society last year by Dr. Parkhurst, neatly prepared and preserved for demonstration, and read a paper upon the subject, giving a report of many similar cases. Dr. Armsby had found in his extended researches but three reported cases where the fœtus had been carried a longer period than the subject of Dr. Parkhurst's paper.

Dr. Phelps, of New York, read a short paper upon the reduction of dislocation of the femur, by the method proposed by Dr. Reid of Rochester, and claimed by him as original. In last year's proceedings, Dr. Shumway reported a case treated in a like manner, and gave the credit of priority to the late Dr. Nathan Smith. Dr. Phelps gave an abstract of his notes, taken while attending lectures in Philadelphia, in which a dislocation is noticed as having been reduced by Dr. Philip Syng Physic, at the Pennsylvania Hospital, by the same method, as early as 1810–11, which is five years earlier than the date of the operation performed by Dr. Nathan Smith, as reported by Dr. Shumway.

Dr. Monell, of Newburgh, exhibited two speciments of dissecting aneurism of the aorta, both occurring in negroes, giving a verbal account of each. Dr. Monell also read a paper upon a remarkable case of insanity.

In the afternoon session reports were called for from the various committees, and others appointed to report upon special subjects.

Dr. Monell, appointed to report upon the epidemics of the second senatorial district, read an interesting paper upon the epidemics which prevailed in Orange county during the last year, which paper was referred to the Committee of Publication.

Dr. Frank H. Hamilton, of Buffalo, gave numerous extracts from a lengthy and well-digested paper upon dislocations, especially reviewing and illustrating the subject of luxations of the femur before referred to, and commenting upon the frequency of surgical jurisprudence in the western part of the State.

Dr. March, of Albany, read extracts from various medical journals commenting upon an operation he had performed for the removal of a tumor of the neck. As he had been censured in several quarters, he would give a detailed account of the whole operation, the character of the tumor, its location, and the reasons which induced its removal. The various causes of death which had been assigned he reviewed, and gave it as his opinion, as well as of the physicians who were in attendance, and were the witnesses and actors in the operation, that

death resulted from three causes :—1, Loss of blood ; 2, shock to the system ; 3, introduction of air into the venous circulation.

A part of the morning of the second day was occupied by the reading of short biographical notices of several deceased members of the society.

Dr. Snyder read a biographical sketch of the late Dr. Daniel Ayres, of Amsterdam, Montgomery county.

Dr. Coventry read a short biographical sketch of the late Professor James Webster, of Geneva Medical College, who died at Louisville, July 18, 1854.

Dr. John S. McCall, of Utica, read a paper on the needs, duties, and privileges of the medical profession.

Dr. Phelps, of New York, presented a paper upon the early and present condition of the medical profession.

Both of these papers were referred to the Committee of Publication.

Dr. Augustus Willard, appointed to report upon the epidemics of the sixth senatorial district, read a paper upon the epidemics of Chenango and Brown counties. It is to be regretted that the rest of these committees did not report, and it is respectfully urged that the circulars sent out by the persons appointed may be responded to by all, so that the reports may be full and complete. By so doing the printed transactions of the State Society will become a valuable documentary history of the epidemics in our state, and the value of the society be immeasurably increased.

Dr. Brinsmade, of the third senatorial district, promised a full report of the epidemic cholera as it appeared in Troy, drawn up by himself and Dr. W. P. Seymour, the Health Officer. This report was not ready, but would be placed in the hands of the Committee of Publication, by order of the Society.

Dr. Foster of New York offered the following, which, after an animated discussion by Dr. Bradford, of the State Senate, Dr. Staats, Dr. Burr, and Dr. Foster, was laid upon the table :—

Whereas, the Legislature are about to provide additional accommodations for the insane : this Society deem it a fit occasion for the epression of its opinion : Therefore,

Resolved, That an Asylum capable of accommodating two hundred and fifty patients is preferable to one of a larger size.

That the selection of a proper location for an Asylum should be made in view of the construction of such a number of Asylums of that magnitude as the present and future wants of the State may require.

That the site of a Lunatic Asylum should unite, so far as it may be found possible, the qualities of salubrity, protection from cold winds, agreeable scenery, proper drainage, cheapness of living, ease of access by railroads, and such proximity to a large town as will facilitate frequent inspections.

Dr. Hamilton finished the reading of his paper on dislocations, commenced the day before.

Dr. Corliss, in connection with the subject of surgical jurisprudence, remarked that in transverse fractures of the fermor, there will *always* be shortening of the limb, and he thought upon this all legal decisions should be based.

Dr. March closed the morning session by reading a paper upon the operation for hare-lip, and exhibited a new forceps he had invented for this operation.

The afternoon session was set apart, by a vote taken in the morning, for the election of officers, but upon motion of Dr. Staats, the order of business was suspended, to allow Rev. Mr. Warren, of the New York Temperance Society, to address them for a few moments.

The Rev. gentleman wished to call the attention of the members of the Society to the circular of the chairman of the Select Committee of the Legislature "upon so much of the Governor's Message as relates to intemperance," and especially to the inquiries addressed particularly to the faculty, as follows :—

Does the regular and continued, though moderate, use of alcoholic liquors, *as a beverage*, render the human system more liable to attacks of disease?

What diseases are usually aggravated, or rendered more difficult of cure, by such use of such liquors?

Do intoxicating liquors, used as a beverage, have such an influence on human passions as to justify the conclusion that their use tends legitimately to the commission of crime?

Dr. Geo. W. Bradford of the State Senate, then offered the following resolution :—

Whereas, Rev. C. J. Warren, Corresponding Secretary of the New York State Temperance Alliance, has presented to this Society several inquiries as to the influence of intoxicating drinks in aggravating or inducing disease ; and whether such drinks do so excite evil and malevolent passions, that they may be said to lead naturally to the commission of crime ;

Resolved, That this Society deem these inquiries important and timely ; and that we recommend the members to co-operate, to the extent of their convenience, in obtaining and diffusing the information desired.

This resolution, seconded by Dr. Phelps, of New York, and sustained by Dr. Hiram Corliss, in a sharp, pungent, and impressive speech, was unanimously adopted by the Society.

The election of officers then took place, which resulted in the choice of—

Dr. Frank H. Hamilton, of Buffalo, for President.
Dr. Thomas Hun, of Albany, " Vice-President.
Dr. Howard Townsend, " " Secretary.
Dr. Peter Van O'Linda, " " Treasurer.

The gentlemen whose names follow were elected permanent members :—James R. Wood, B. Fordyce Barker, Philander Stewart, G. C. Monell, Alfred Watkins, Ebenezer Steel, Freeman Turtelot, Henry C. Gray, Luther Gutieau, A. L. Saunders, Marcena Terry, A. B. Case, John Coventry, Edson Carr, Autin Flint, John B. Coats.

Dr. Horace A. Buttolph, of New Jersey, and Marshall Hall, of London, were elected honorary members of the Society.

In the evening the President delivered his annual address, in the Assembly Chamber, which, by resolution presented by Dr. Corliss, was requested for publication.

During the session of the third day, the following gentlemen were elected to be recommended to the Regents of the University, for the Honorary Degree of Doctor of Medicine :—J. Kneeland, James L. Phelps, A. Churchill, Edson Carr.

Dr. W. S. Norton read a paper on injury of the shoulder joint.

Dr. Horace Green, of New York, read a paper on the employment of injections into the bronchial tubes, and into tubercular cavities of the lungs. This paper was the continuation of the subject, as presented to the readers of this Journal in the January No., giving more extended notices of the cases there reported, with the continued good results of the treatment in these and other cases.

The resolution offered by Dr. Foster, relative to lunatic asylums, was called up, and after some discussion, was so amended as to read :

Resolved, That this Society is deeply impressed with the importance of further accommodations for the treatment and care of the insane of our State, and they therefore respectfully urge upon the Legislature the speedy passage of the measure now before them for the purpose.

Dr. Chas. A. Lee was requested to furnish an abstract of his "Review of the Trial of John Hendrickson, Jr.," for insertion in the Transactions of the Society.

The Society, after passing a vote of thanks to the Common Council and the Assembly, for the use of their chambers, adjourned *sine die*.

D.

PART VI.—EDITORIAL AND MISCELLANEOUS.

NOTICE TO PUBLISHERS AND AUTHORS.—We frequently receive notes saying that a package has been sent to the MONTHLY in a case to some bookseller of this city. It has been our custom to send for such packages, but there is so much inconvenience attending it, that we must ask publishers to have their books sent to our publisher, Mr. F. P. Allen, No. 9 Spruce street. It should be distinctly understood that we consider the indebtedness, if there be any on either side, to be on the part of publishers, not on that of the MONTHLY, and we shall not consent to be regarded in any sense as beneficiaries.

QUARANTINE REMOVAL.—Petitions have gone up to Albany from the Staten Islanders, asking for the removal of the Quarantine Hospital. A strong push will be made in the House to secure some action upon this matter. It involves the whole question of the necessity or the nuisance of Quarantine regulations, as well as the very delicate one of location for the offices that secure them. The public would enjoy a word on the subject from the parties who are so willing to serve themselves and us in the capacity of Health Officers. What think our humble servants who dance attendance about the Governor's room? Are they for or against a removal? Are they skeptical as to the value of strict Quarantine regulations? or are they faithful believers in the old theories? ‡‡

EMIGRANT PASSENGERS' RELIEF.—Senator Fish last season introduced a bill to prevent repetitions of the awful mortality on emigrant ships which prevailed last year. It was thought to bear rather hard upon portions of the shipping interest; so it was referred to a Select Committee for amendment. During the month of January the amended bill has been introduced to the Senate.

It promises to do much towards effecting the object in view. It requires that larger accommodations than heretofore shall be left to passengers; obliges shippers to provide ampler and better food; compels Captains to give out the food, cooked, at certain hours of the day; affixes heavy penalties for omission to perform any of the duties named; and, most important of all, gives Captains the power to compel order and attention to decency on ship-board. Hitherto, if an intelligent Surgeon asked the officer's aid in obliging a stupid emigrant to come out on deck, and give opportunity to have his filthy

quarters cleansed, the officer could second his intentions only at the peril of involving himself in a suit for assault and battery. The bill odes not overlook the necessity of full inspection of ships—though, unfortunately, the inspection provided for is at the beginning, instead of the end of the voyage, when it would be more likely to detect abuses—or of full returns of the particulars of any deaths that may occur. It would have been still better if a larger portion of the food ordered had been of a nature to leave no irregularity of meals, in case of a storm of unusual severity and duration; but as it is, the bill is an excellent exchange for the present disgraceful system. Senator Fish merits thanks for his humane and unwearied attention to this matter. ‡‡

ITEMS.

It has been charged in our City dailies, that the popular sickness is greatly increased on Sundays, and that some of our druggists are called upon for enormous amounts of "something warming," to relieve sudden attacks experienced by red-nosed visitors, since Mayor Wood has stopped the Sunday sale of liquor. The bills of mortality do not show that the attacks have in any case proved fatal.

The Boston *Telegraph* says that gum-drops which hold a thimbleful of brandy are fashionable in the restaurants of the Literary Emporium.

Dr. Lionel Beale has published a hand-book on *The Microscope, and its application to Clinical Medicine.*

In the Journal of Psychological Medicine for January, Dr. Forbes Winslow has a lecture on Medico-Legal Evidence in cases of insanity. Remarking that the proof of extreme eccentricity is not sufficient to induce the Ecclesiastical Court to set aside the will of a testator, the case of Morgan *vs.* Boys is quoted, as in point:

"The testator in this instance died, leaving by his will a large fortune to his housekeeper. The will was disputed by his relatives, on the ground that it bore intrinsic evidence of his not having been in a sane state of mind. After having bequeathed his property, the deceased directed that his executors should cause some part of his bowels to be converted into fiddle-strings, that others should be sublimed into smelling salts, and that the remainder of his body should be vitrified into lenses for optical purposes! He further added in a letter, 'The world may think this done in a spirit of singularity or a whim;' but he expressed himself as having a moral aversion to funeral pomp, and he wished his body to be converted to purposes useful to mankind. Sir Herbert Jenner Fust, in giving judgment, held that insanity was not proved; the fact merely amounted to eccentricity, and on this ground he pronounced in favor of the will. It was proved

that the testator had conducted his affairs with great shrewdness and ability; that he not only did not labor under imbecility of mind, but that he was treated as a person of indisputable capacity by those with whom he had to deal."

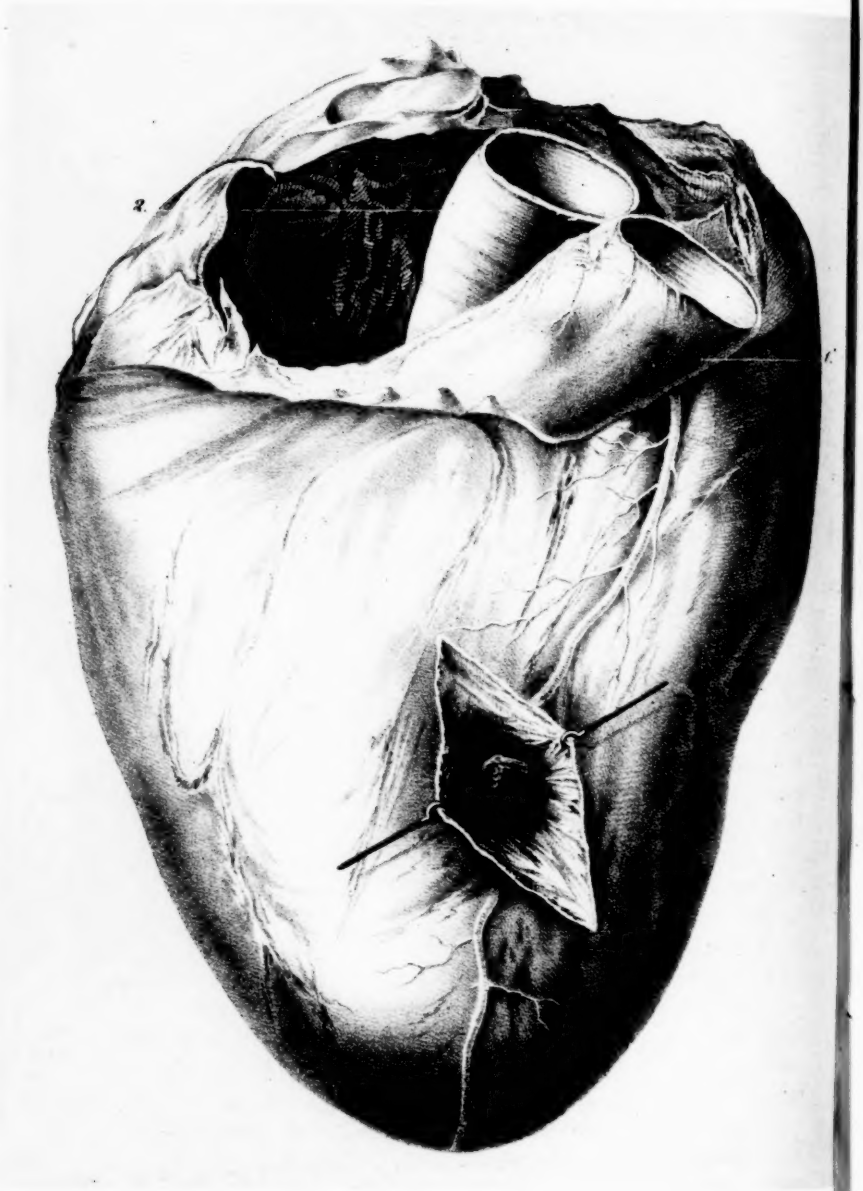
Dr. Winslow maintains that there is a good deal of crime committed by persons who are "medically," if not legally insane; and insists that the amount of punishment should be awarded with some reference to the physical condition, training, and temptations of the convict, and to the question whether he has not sprung from intemperate, insane, idiotic, or criminal parents.

The Water-Cure humbug is not quite dead yet in England. Dr. JAMES WILSON, one of the earliest who was shrewd enough to advertise himself by forsaking honorable practice for the water-cure, is out again with "The Principles and Practice of the Water-Cure." Medical historians will do well to order some well-digested exposition of the "system" before they go out of print. What would we not give now for a genuine cotemporaneous history of the medical delusions that flourished in the times, say of William the Conqueror?

Mr. C. Holthouse, F.R.S., has issued, by the house of Churchill, six lectures on the Pathology of Strabismus and its treatment by operation, of which critics speak well.

Dr. SEMPLE of the Parochial Infirmary, Islington, has been dismissed from his post by the town authorities, because he laid before the Board of Health the filthy and over-crowded state of his wards. The English medical journals are indignant over the matter. Medical office-holders in this meridian should take warning, and not see too much.

At the late anniversary of the San Francisco Medical Society, Dr. COIT, the president, pronounced a glowing eulogy on the character and talents of the late VALENTINE MOTT, Jr., who was one of the Society's vice-president's. Dr. TOLAND was appointed to prepare a memoir of the deceased. The Society elected the following officers for the ensuing year: Dr. TOLAND, president; Drs. Gerry and Donver, vice-presidents; Dr. Bertody, corresponding secretary; Dr. Smiley, recording secretary; Dr. Holman, treasurer; Dr. AYERS, curator; censors—Drs. McIntosh, S. R. Harris, Hewett, Behr, Rowell. From the new president's address, it is evident that quackery occupies about the same position there as here to the straightforward, scientific practice of medicine.



The plate is from a drawing of Pooles heart, the exact size. A layer of fibrin is seen on the surface.

An incision through the Muscular fibres and across the Coronary artery discloses the bullet. The bullet is seen lodged in the septum Medium behind the anterior Coronary artery.

1. the pulmonary artery. 2. the Aorta.